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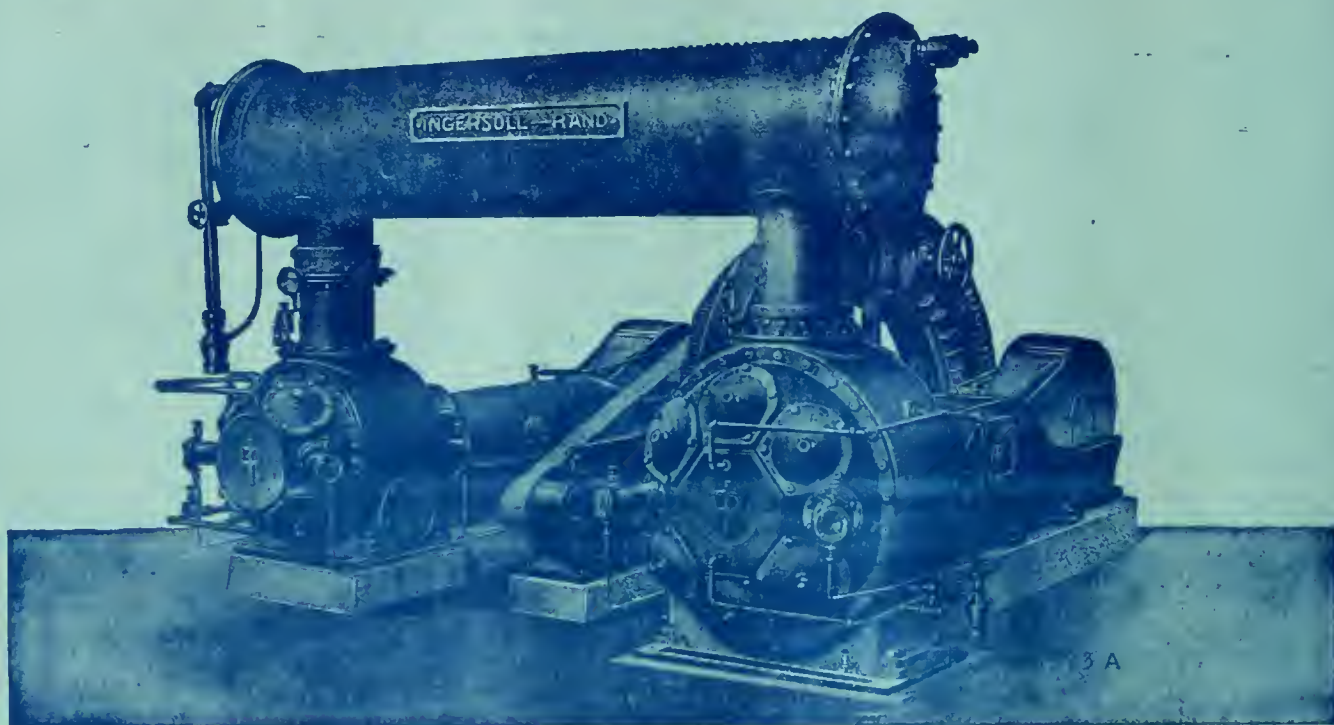
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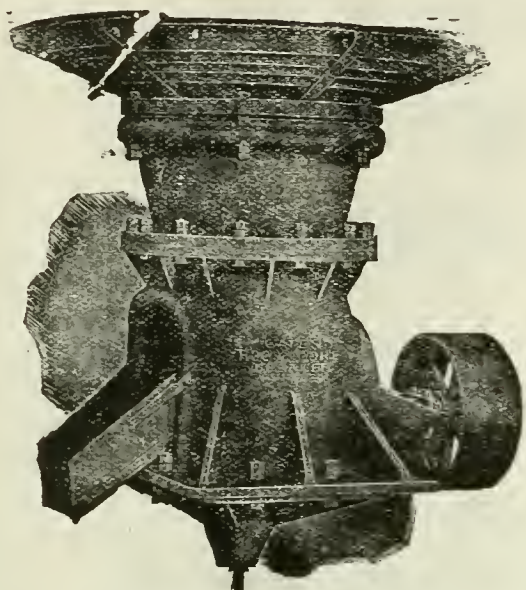
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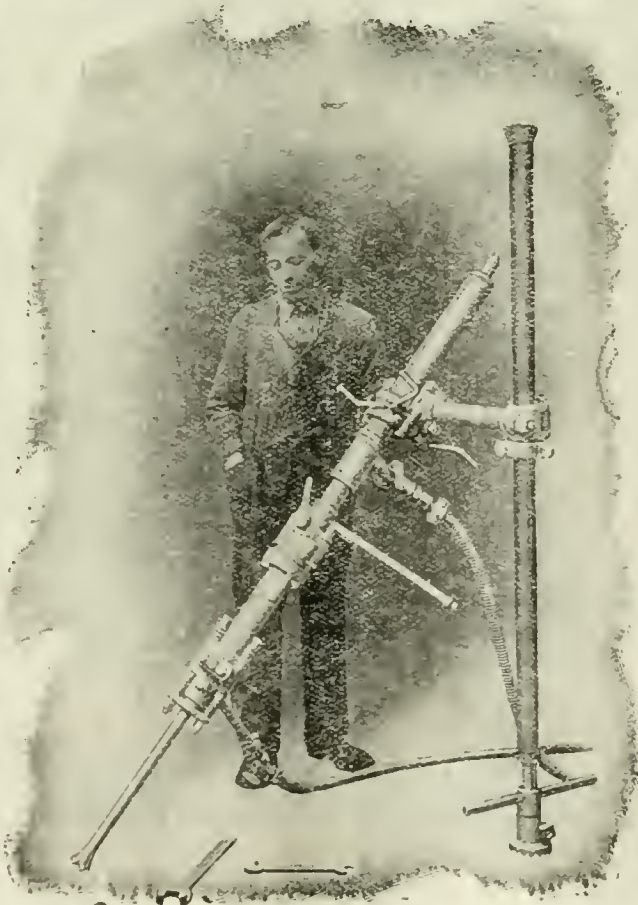
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## Notes and News.

The Commission to inquire into the possibilities of State  
mining in South Africa and to obtain  
information for the Select Committee  
which reported on the Far East Rand  
is in course of formation. It will  
probably consist of Mr. P. Ross Frames (chairman), Advo-  
cate John Taylor, Mr. Van Eyssen (late manager Govern-  
ment Gold Mining Areas), and Mr. R. H. Miller (Amal-  
gamated Society of Engineers and treasurer to the Industrial  
Federation). The name of Advocate Tienhan Roos, the  
prominent Nationalist, is also mentioned as a probable  
member. The terms of reference have not yet been  
published.

\* \* \* \*

It may be remembered that Professor Schwarz dealt with  
the fascinating subject of the rift valleys  
of the Eastern side of Africa in an inter-  
esting paper on "Post-Jurassic Earth  
Movements in South Africa," which he  
contributed to the *Geological Magazine* in December, 1912.  
Some extensive notes on the subject of the Tanganyika-  
Nile Rift Valley by Captain C. H. Stigand and Arthur  
Holmes appear in the August number of the *Geographical  
Journal*. They are worth reading, not only for the amount  
of information they give with regard to a much-discussed  
problem; but also with respect to the question of the possi-  
bility of future outbreaks of vulcanism in that part of the  
world that is still considered by some to be a matter for  
more than merely academic discussion.

\* \* \* \*

The drill in the deepest hole of the Sakalava oil venture is  
reported to have reached a depth of a little  
over 2,000 feet at the date of the last  
cable, and to have penetrated a stratum  
of limestone. The driller in charge is also said to have  
expressed his confidence that oil, in satisfactory quantities,  
would be reached at about 2,500 or 2,600 feet. The share-  
holders will, naturally, await further communications with  
eager interest.

\* \* \* \*

At the ordinary monthly meeting of the Geological Society,  
held last Monday, a paper by Professor  
E. H. L. Schwarz was read entitled  
"Notes on the Geology of Natal." Mr.  
W. G. Holford read a discussion on Dr.

Wagner's paper on "An Interesting Outlier of Karroo Rocks  
to the north of Olifantsfontein, reported elsewhere in this  
issue. In a contribution to the discussion on Professor  
Schwarz's paper, entitled "Diamonds from the Molteno  
Beds," communicated by Mr. David Draper, it was  
announced that five Kimberlite pipes and a number of minor  
occurrences of the rock had been discovered by the State  
geologists in the Serra da Matta, da Corda region, Minas  
Geraes, Brazil. Dr. Wagner, in discussing this communica-  
tion, said that the discovery of Kimberlite pipes in a district  
of Brazil that had yielded large quantities of alluvial dia-  
monds, was, to say the least of it, highly suggestive. He  
noted, however, that it was not mentioned whether any of  
the pipes have actually been proved to be diamondiferous,  
and further information on that point would be waited with  
considerable interest. With Dr. Corstorphine's remarks on  
the Geological Survey we deal in our leading columns.

\* \* \* \*

In the course of their quarterly report to June 30 the direc-  
tors of the Nigel G.M. Co., state:—The  
results of development in the new shoot  
up to date of the annual meeting, viz.,  
25th May, were as then stated by the  
chairman, of an encouraging nature. Unfortunately, how-  
ever, operations between that date and the end of June  
proved most disappointing, and it was decided to defer the  
issue of this report pending information from the manager  
regarding the results for July. Directors regret to state that  
July operations showed no improvement, the ground opened



up in the several drives, winzes and raises in almost every case proved unpayable, the reef being very thin and of low value. The winzes and raises referred to were all in the assumed line of the shoot. The manager hopes that owing to the series of faults met with in the ground already prospected the shoot may have been thrown out of the assumed line of direction and that there is still a probability of striking it payable. In view of this he strongly recommends the prosecution of further search till at least the end of September, by which date it should be conclusively proved whether the shoot as a whole is or is not payable. The Board approves of this recommendation. As the future prospects of the company greatly depend on this new shoot proving to be of sufficient size and value to keep the works going while development is continued in the underground shaft it will be seen that, should no better results be obtained by the date before mentioned, the entire position of the company will require reconsideration, as by that time the financial assistance given by our bankers will be practically exhausted.

\* \* \* \*

The report of the South-West Africa Company for 1915 states that the profit amounts to £12,597, from which is deducted for the directors' percentage £630, leaving £11,967. The amount carried forward from the preceding year was £84,859. The directors' percentage of profit for the year 1915, like that for 1914, has been placed to a suspense account. A sum equal to the amount of interest on investments deposited and on bankers' balances in Germany accrued during 1915 has been placed to reserve. No provision has been made for depreciation on investments, and the board does not recommend the payment of a dividend. Of its original land grant of about 3,250,000 acres the company has now disposed of 1,630,000 acres, including about 840,000 acres ceded to the Otavi Mines and Railway Company. Building sites at Grootfontein have been sold to the extent of 29,017 square metres, and 14,750 square metres have been presented as gifts to religious institutions, and for a hospital. Negotiations are now pending with a view either to the immediate sale for cash of the Rietfontein property or the formation after the war of a British company for its exploitation. The option given to the intending purchasers in February, 1914, has been prolonged until the expiration of six months after the conclusion of peace. In May, 1914, an expedition left Grootfontein to study the geological features of the country in the neighbourhood of the Omuramba Ovambo, proceeding via Guntzas, Tsintsabis, Namutoni, along the Etosha Pan to Okaukuejo, and Okahakana, the terminus of the proposed Ovamboland Railway, and investigating a large salt deposit about 20 miles to the north-west near Nurakonda. A number of samples from the salt deposit were sent to England for analysis; one of them was found to contain about 94 per cent. of pure trona. It will be necessary to await the restoration of normal conditions before a further and fuller investigation by means of a new expedition is possible. A further small copper deposit lying close to the boundary of and inside the Kaokofeld was pegged off by the expedition in July, 1914. Prospecting operations are now suspended.

\* \* \* \*

While not generally regarded as interested in mining, the appraisalment of the estate of the late J. P. Morgan, recently published, disclosed the fact that he held at the time of his death mining securities valued at more than 1,000,000 dollars. These included 268,000 dollars of Cerro de Pasco Mining Co. 6 per cent. debentures, valued at 192,960 dollars; 5,500 shares Cerro de Pasco Investment Co., 550,000 dollars; 27,784 shares, Champion Reef Gold Mining Co., of India, 69,864 dollars; 4,730 shares, Mysore Gold Mining Co., 121,716 dollars; 12,000 shares, North Star Mines Co., 132,000 dollars; 20,000 shares, Stratton's Independence, Ltd., 9,745 dollars; 1,125 shares, Transvaal Gold Mining Estates, Ltd., 15,759 dollars; Mr. Morgan owned worthless stocks of a par value of more than 7,000,000 dollars; among these were shares in

three other mining companies, probably acquired through trade as most of them were not of a type that would have appealed to him for investment.

\* \* \* \*

The next ordinary general meeting of the Chemical, Metallurgical and Mining Society of South Africa will be held in the Lecture Theatre, South African School of Mines and Technology, Johannesburg, on Saturday, the 16th inst., at 7.45 p.m. The presidential address by Prof. J. A. Wilkinson, M.A. (President). Papers for reading: (1) "Valuation of Mines," by Prof. R. A. Lehfeldt; (2) "The Manganese Silver Problem," by Mr. W. Neal. These papers, printed in the July and August journals, will be submitted for discussion. Reply to discussion: "The Conglomerates of the Witwatersrand," by Dr. E. T. Mellor. Final discussion: (1) "Notes on Rare Minerals in Madagascar," by Mr. T. P. Waites; (2) "Some New Methods of Testing for Molybdenum," and (3) "Analysis of Niobium-titanium Minerals, with some new tests for Niobium Tantalum, and Titanium," by Dr. James Moir. Continued discussion: (1) "Concrete Shaft Equipment at the Bantjes Consolidated Mines," by Messrs. W. W. Lawrie and G. Hildaick-Smith; (2) "On some Diseases of the Respiratory Organs incidental to Miners, as portrayed by Dr. Agricola, in A.D. 1550," by Dr. J. de Fenton; (3) "The Encouragement of First Aid Work on the Mines: Some suggestions based on Crown Mines experience," by Mr. A. J. Brett.

\* \* \* \*

The report of the Rhodesia Railways for the year to September 30, 1915, states that the gross revenue was £794,602, a decrease of £186,270; expenditure, £381,995, a decrease of £44,555; and net earnings, £412,607, a decrease of £141,715. The decrease of £186,270 in gross revenue and of £141,715 in net earnings was principally due to a heavy falling off in high grade traffic from Oversea, to the practical cessation of the carriage of railway construction material, and to a temporary decrease in the tonnage of chrome ore exported. There were satisfactory increases in the tonnage of and revenue derived from coal and coke, copper ore, and other mineral traffic. Approximate figures for first six months of present financial year are: Gross revenue, £452,171; expenditure, £211,265; and net earnings, £240,906. The gross revenue increased by £70,281 and the net earnings by £65,602 as compared with the corresponding six months in the previous financial year. There has been a general improvement in traffic, particularly in general merchandise and chrome ore. The net revenue account shows a credit balance for the year of £58,175, increasing the credit balance brought in to £177,929, which it is proposed to carry forward. The erection of the Victoria Falls Hotel, which has been somewhat retarded by the war, is nearing completion and will be ready for the use of visitors before the end of 1916. Work upon the additional water supplies for Bulawayo continued steadily during the year, and the dam across the Khami River has been completed. The laying of the pipe-line to Bulawayo is in hand, and it is hoped that this important new source of supply will shortly be brought into use.

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In the course of a recent discussion in the House of Commons, a question was asked as to whether the Government intended to enforce the liquidation of the Deutsche Bank, the Dresden Bank, the Direction der Disconts-Gesellschaft, and similar alien financial institutions shortly after the declaration of Peace, and to take steps to prevent such alien enemy financial institutions or their direct or indirect agents from carrying on any business in this country in future. Mr. Harcourt, who replied on behalf of Mr. Runciman, who is still away from the House, said that the institutions referred to in the question were at present prohibited under the law relating to alien enemies from carrying on any banking business in this country, except the completion of transactions entered into before the outbreak of war, so far as these transactions

#### The Late J. P. Morgan's Mining Interests.



would, in ordinary course, have been carried through or with their London establishments. It would be premature to make any statement at the present moment as to whether and, if so, under what conditions, they would be allowed to resume business after the conclusion of peace. Major Hunt asked why about 400 German firms were still allowed to do business in this country? Mr. Harcourt, in reply, said that the work of eliminating enemy interests in businesses carried on in this country was proceeding with all possible rapidity. It was proposed shortly to issue a statement showing the nature and extent of the work of the Board of Trade's Advisory Committee in this matter. Each case must necessarily receive close investigation in order that the injury to British interests might be minimised. In the meantime all the more important businesses not dealt with in the above manner had been placed under supervision, and steps were being taken to extend supervision to the remainder. According to the *Times*, Sir J. Harmond-Banner asked in the House of Commons whether all British ministers in neutral countries had been instructed to notify British traders in those countries that the Government's policy of commercial reprisals against alien enemies in neutral countries, as formulated in the Trading with the Enemy (Extension) Act, was to be regarded as continuous and would not terminate on the declaration of peace. Sir E. Grey, in reply, said that the question would receive careful consideration in connection with the recommendations made by the Paris Conference. In reply to a House of Commons question, Mr. L. Harcourt (according to the *Times*) said that the Advisory Committee appointed under the Trading with the Enemy Amendment Act, 1916, had investigated the businesses of 415 companies and firms, and it was anticipated that there might be somewhat over 200 additional cases for their consideration. Most of the important cases had already been considered by the Committee, and in view of the progress which had been made and the desirability of uniformity of treatment, he did not think it was necessary to appoint any further committee.

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Among the latest company registrations at Somerset House is an association, under influential auspices, to protect British capital and property in enemy countries. Its full title is "Association for the Protection of British Capital and Property in Enemy Countries, Ltd.," and it was registered on the 11th ult. as a company limited by guarantee, with an unlimited number of members, each liable for £100 in the event of winding-up. The association is to advise and assist members and others by all lawful means

(a) In protecting and recovering the proceeds of the sale of any business or of the sale of any shares or interests in any company incorporated or trading in enemy territory, or in protecting and recovering loans made to any company or individual in such territory; and (b) in protecting, recovering, realising or obtaining compensation for the loss of or injury to property, rights or interests of any kind whatever and whosoever situate, domiciled or enforceable (including stock of and shares in companies, capital in partnership concerns, bills of exchange, promissory notes, mortgages and securities, trade marks and patent rights) belonging to or vested in any member or members (either solely or jointly with others, and either absolutely or as trustees, mortgagees, incumbrancers or otherwise) or in subsidiary companies of which the member or members is or are the majority shareholder, which have been seized, attached, requisitioned, appropriated, made use of, forfeited, destroyed, lost or injured by or at the instigation, or with the connivance or neglect of any enemy country or State, or by any public body or authority, military or otherwise, situate in or acting or purporting to act by the authority or in the name of any such country or State, or by any firm, company or person domiciled, established, trading or residing in any enemy country or in a country invaded or occupied by the military forces of any enemy country, or being a citizen or citizens thereof; to organise joint action by all or any members for the purposes aforesaid, to collect information and draw up and present petitions and particulars of claims and furnish information to British, Indian, Colonial, friendly or neutral Governments, etc.

The management is vested in a council, the first members of which are:—

Sir Arthur P. du Cros, Bt., M.P., 14 Regent Street, London, S.W.; Right Hon. Thos. R. Fergus, M.P., Hull, director of Reckitt & Sons, Ltd.; Joseph Hood, 7 Millbank, London, S.W., solicitor, director British American Tobacco Company; Sir Charles Jessel, 21 Austin Friars, London, E.C., Chairman Imperial Continental Gas Association; W. Hulme Lever, Port Sunlight, Cheshire, director of Lever Bros.; John McDowell, Port Sunlight, Cheshire, director of Lever Bros.; Sir William Priestley, M.P., Bradford

## TOPICS OF THE WEEK.

### INDUSTRIAL DEVELOPMENT.

WHILE we are not prepared, at first glance, to subscribe to all the arguments set forth in the eloquent annual report of the South African National Union, the bulk of them are acceptable to all who have at heart the welfare of the country. Leaving to another occasion the discussion of those points wherein the report seems to take too much for granted, we may very briefly indicate the excellent objects for which the National Union is striving. In the words of the report itself, the main need of South Africa at the present time may be summed up in the term "greater development." To some extent this is slowly taking place, and will no doubt continue even with the existing organisations. But to hasten the process, especially in the sphere of manufacturing activity, it is considered that three institutions are necessary, *i.e.*, an Association for Scientific Research, an Industrial Bank, and a Government Board of Industries. Without the creation of some such bodies it will be impossible to make ready for that era of progress and prosperity which is almost certain to be offered to us after the close of the war. On the need for the first-named, as our detailed reports of the work of our scientific and technical societies have shown for some time, everyone is agreed. Again, the idea of an industrial bank, publicly mooted for the first time, we believe, by Sir Lionel Phillips, has everything in its favour; and the third desiderata has already, in effect, been granted by the Government. It is not too much to say that nobody in the country would offer to oppose either of the other proposals, if brought forward in concrete form to-morrow, and the only delay in their fruition comes from the usual inertia of those with whom the initiative rests. Of course, much of this inertia is due to the obvious and manifold difficulties, which, in one part of its report, the National Union clearly admits. Though the growth of manufacturing industries is essential to our existence, the report shows that the limitations of South Africa must be recognised. "Owing to its distance from Europe, its scattered population and to the scanty encouragement given to machinery manufacture in this part, there are classes of highly manufactured metal goods which are outside the scope of its activities. The non-development of its abundant base metals, particularly iron, accentuates this position. The basis of those legitimate industries which it is desirable to develop must be those raw products, animal, vegetable and mineral, which are worked by comparatively simple machinery and can be cheaply converted into some second-class manufactured output. The motto should be to export nothing in the raw state which can profitably be converted into another article of higher value before it leaves our shores. This applies with equal force to agricultural products as to the mineral wealth of the soil." Nothing, of course, could be more true or better expressed; but we must not be deceived into thinking that because we appreciate the difficulties, we have overcome them. For instance, it might be shown that later on in the report itself the wise warnings of its preliminary paragraphs are often forgotten. But such inconsistencies are inevitable in any document that aims to formulate a single comprehensive economic programme for a country characterised as ours is by conflicting economic conditions. The point is, that the latest report of the National Union does take us further, and that out of the welter of opinions regarding our economic future, it salves some valuable constructive ideas, which, if it never did more than carry to success, would cause it to deserve well of the country.



## GEOLOGY AND MINING.

At the last meeting of the Geological Society of South Africa, Dr. Corstorphine called attention to the process of attrition that was affecting the staff of the Geological Survey of the Union, and to the fact that the Government was taking no steps to make good the wastage. In confirmation of this statement he referred to the comparatively recent resignation of three members of the Survey, and to the lamentable death of Mr. Kynaston, the former director of the department. The resignation of Dr. Mellor only the other day gave us an opportunity to speak of the unsatisfactory state of things which could result in the loss of so capable and experienced a geologist. Quite lately, as if to add emphasis to our remarks, there has come, we are informed, the equally unfortunate resignation of Dr. Humphrey, whose work, in various parts of the Transvaal and Natal, has been abundantly appreciated by those who are competent to judge of its quality. Some time ago, the then director of the Survey referred in somewhat regretful terms to the resignation of Dr. Wagner, who obviously found himself compelled to leave a service which held out little inducement to really able and zealous men. It is quite evident, therefore, that there has been rather more than a process of attrition in the ranks of the Geological Survey. It has been reduced by something like fifty per cent., to put the estimate on the conservative side, during the last five years, and mainly in a field which is by far the most important in the Union. If one considers the apparent economic value of the Transvaal and Natal as sources of mineral wealth, when compared with the Free State and the Cape Province, it will scarcely be denied that the effective capacity of the Survey has been diminished by a great deal more than fifty per cent., for in place of four hard-worked geologists in the former area we have now only one. There is no doubt about the qualifications of Mr. A. L. Hall, who is the last of the small group of distinguished Transvaal geologists, but with a task of years before him, to say nothing of other discouragements, can it be expected that he will feel other than overwhelmed. In addition to him, there are, of course, Dr. Rogers, the present director, and Mr. Du Toit, both of the Cape Province; "*rari nantes in gurgite vasto*." It has been suggested by Dr. Corstorphine that the Council of the Geological Society should make representations upon the subject to the Minister of Mines. Will that be sufficient? Is it not likely that the Minister will receive their protest as that of a section whose views are limited to the purely scientific aspect of the position, and who are not sufficiently appreciative of the financial considerations that are very intimately bound up with the whole question? Surely there are others, also, who would come forward, whose advice would have some influence, and whose opinions could be accepted as being those of hard-headed business men. It is necessary to impress the official head of the Mines Department that mining is intimately dependent upon geology, and that a paltry four or five thousand pounds per annum—which seems to be the full extent of the aid which the Government now is prepared to give to the very necessary work of geological enquiry—is scandalously inadequate, and indicates a gross inability to appreciate the big issues at stake. It is, indeed, a woeful sign of the lack of appreciation of scientific research, as Dr. Corstorphine truly remarked, "when our Geological Survey is allowed gradually to become extinct." It is more; it is a policy of economic strangulation, and is particularly reprehensible at a time when the cry on every hand is for the development of our national resources. And our readers need scarcely be told that, of these, the first and greatest is mining.

## SIR LIONEL PHILLIPS ON LABOUR QUESTIONS.

THE mail brings the full report of the address recently delivered by Sir Lionel Phillips on "South Africa and the Empire Problem." Though ranging over a wide variety of subjects, the most interesting feature of the address, to our mind, is the portion dealing with white labour problems, in which was much applicable to questions now engaging attention on the Rand. Though modestly disclaiming to be able profitably to touch the great and far-reaching subject of the relations between capital and labour, he declared that our Imperial greatness must rest upon the discovery of a just and amicable solution. He said that one of the serious dangers to Britain—and, he might have added, to South Africa—lies in distrust and hostility between employers and employed, to the detriment of both. "There are," he said, "of course, faults on both sides. Labour refuses its best thought and effort because it charges Capital with greed in the division of the profits." Sir Lionel then proceeded to put into words what many people are to-day thinking.

From the standpoint of Empire, and the welfare particularly of the people of Great Britain—rich and poor—a return to pre-war conditions of perpetual industrial unrest must spell disaster. Consumption of savings, which have enabled us to face the storm, and heavy debts are bound to make the stress of life very severe. Recovery and rehabilitation are alone to be achieved by a greater earnestness and thoroughness in our work. False appeals by politicians to popular passions and prejudices, to catch votes, must be eschewed. Many of them are at the Front. Will they on their return light-heartedly pursue the old game? A factor of immense weight in educating opinion on the right lines may be the home-coming of that great army of young men, fresh from scenes of horror and hardship, steeped in a new patriotism, hating shams, and schooled in the realities of existence. Labour leaders with the real welfare of their followers at heart will be more than ever needed. The revolt of bodies of men against the decision of their own elected leaders in several recent cases, and in favour of unofficial leaders who have sprung into prominence through the violence of their counsel and the uncontrolled fervour of their oratory, is evidence of the urgent need for organised labour to stiffen its rules. To disregard your own laws is anarchical. The irresponsible demagogue, the professional strife-raiser must be suppressed. The intelligence of these war-worn soldiers will be sharpened, and they will not so easily fall a prey to the agitator and syndicalist. They may perceive in their machinations the tactics of the cobbler in *Julius Caesar*, leading the mob about the streets to wear out their boots and make more work for himself!

Sir Lionel went on to set out a few elementary principles that we must assimilate and follow:—

1. The more labour each one of us performs, the more labour there will be for all to perform. This is the negation of the false doctrine known as the lump of labour.
2. The more we try to ameliorate the conditions of the poor by the gift of things for which they have not worked, the more assuredly are we fixing upon them the shackles of indigency. Human beings are governed by the same natural laws as plants and animals, and there is no escape from the perpetual struggle for existence.
3. The highest duty of a Government is the safety of the State. In that is comprised not only adequate numbers of men, but of implements of destruction for its defence. It involves discipline of the citizens and, if need be, their forced obedience to the laws. Its sphere is also the mental, moral, and physical welfare of the people. It is not concerned with their ease and comfort. They sound, I confess, like copybook maxims, but in these days of pain and anxiety we are more inclined to ponder upon their meaning than in halcyon days of peace and plenty. There is a thoughtful article entitled "Economic Reconstruction" in the June number of the *Round Table*. It contains a great many figures and quotations from acknowledged authorities. It analyses the earnings of the nation, and shows how unequally they are distributed. But the writer wisely refrains from prescribing remedies. The fact is, there is not, and never will be, any remedy but one—*work*. The more efficient the workman, and the greater the output, the greater the accumulation of capital and the higher the wages. That is why the squandering of resources in war injures not only capitalists but the working classes. It is a case of supply and demand. Plentiful capital, cheap capital, high wages. Scarce capital, dear capital, low wages.

There are lessons here from which others as well as those primarily addressed may benefit.



## THE LATE SIR SIGMUND NEUMANN.

### Passing of a Noted Figure in Anglo-African Mining Finance—A Tribute Recalled.

By the death of Sir Sigmund Neumann, Bart., at Bourne-mouth during the week, Anglo-African mining finance loses a notable leader, and one who played no small part in the rise of the Rand mining industry. The late Baronet was born in Bavaria in 1856, and came to this country at an early age. His admiration for the free institutions of the British Empire was wholehearted and undisguised; and pioneers still recall a verbal chastisement he once administered to a well-known South African who questioned the sincerity of his professions of regard for his adopted country. The financial ability he displayed brought him into prominence, and a prosperous career was attested by his founding of the well-known firm of S. Neumann & Co., mine owners, diamond buyers, and financiers, of London and South Africa, of which he was latterly the sole partner. The firm is identified with many gold mining and coal mining companies, in which it has controlling interests, and Sir Sigmund Neumann had lesser interests in other mining companies. He was last in South Africa in September, 1910. Messrs. Neumann & Co. have large financial interests in London, where Sir Sigmund was a director of the African Banking Corporation and the London Joint Stock Company, and where he had a banking business of his own, under the style of Neumann, Lubeck & Co., Salisbury House, E.C. We cannot refrain, in closing this brief and inadequate notice, from recalling the unique tribute he paid to ourselves, on the occasion of the anniversary of the paper four years ago. On that occasion he wrote to us: "I have great pleasure in joining heartily in the numerous congratulations which you will doubtless receive on the occasion of your excellent journal having reached its majority. From the early days of the Witwatersrand to the present time the *South African Mining Journal* has undoubtedly filled a most useful rôle, not only in keeping well posted in current news all those interested in South African mining, but in consistently striving for a high standard of efficiency. The Witwatersrand gold field occupies a unique and unrivalled position amongst the gold-producing areas of the past and present, both as regards its enormous output

of gold and the technical skill required to obtain that output. It is largely owing to the freedom with which every technical suggestion or advance has been discussed in the various societies and in the press that this high degree of efficiency has been attained, and that the industry is still in the front rank of the mining world in its desire to adopt every possible technical improvement that may be brought to its notice. There are undoubtedly many technical problems, especially in the direction of labour-saving appliances, which yet remain to be solved, but I am confident that the resource and determination which the industry has shown in overcoming one by one the difficulties of the past will not fail to find an adequate solution of these, or any other problems which may present themselves in the future. It is in this direction that your widely-read journal has rendered yeoman service to the industry by the collection and analysis of the mass of technical information which is continually being issued, and, by continuing to act as a medium of public discussion of the various problems, which present themselves from time to time, you will greatly help towards their satisfactory solution. The interests of your journal are so bound up with the growth and prosperity of the mining industry of South Africa that, with the prosperity of that industry, I am confident your journal will continue the useful and prosperous career which I, in common with your many friends, desire of it."

Of the many flattering testimonials to the services of this paper that have come our way, we can remember none more generous or sincere than Sir Sigmund's. It is fitting that, in return, we should not forget to add our simple tribute of regret and respect to his memory!

### The First Rhodesian Mining Congress.

The first Rhodesian Mining Congress, inaugurated by the Rhodesia Chamber of Mines, will be held in Salisbury next month.

### The Shale Oil Industry.

At the recent meeting of the Society of Chemical Industry an interesting review of the shale oil industry was given in a paper by Mr. D. R. Stenart, who said there were now four refining companies—Young's, Oakbank, Broxburn, and Pumpherston—with a total capital of about £3,000,000. The men employed numbered 10,000, including miners. In addition, there was a private company at Philpstown (Ross and Company), making crude oil and ammonia. The works now existing all lay in one shale-field situated in West and Mid-Lothian, the centre of the field being some 12 miles west of Edinburgh. It stretched from the Firth of Forth at Hopetoun southwards for 16 miles, with a width varying from about three to eight miles. Many thin seams of shale were found all over the coalfields of Britain, and there were retorts in the early bright days of the industry. There was a considerable manufacture in Wales for some years. But foreign competition put all out of existence many years ago, except those situated in the calciferous sandstone. The mining of the shale was always increasing in cost. The easiest obtained happened also to be the best and so now they had to expend more money to get a shale which was poorer. The spent shale was not utilised at present; but a little enterprise and capital might produce from it products of value. Spent shale was more friable than clay and so more easily amenable to chemical reagents, but the heat it had been subjected to had made some constituents more difficult to dissolve. The permanent gas was used as fuel for the retorts. Sometimes no other fuel was used; but generally producer gas from coal was required to help. Having described the processes employed in the industry, the author remarked that if it had not been for the ammonia the industry would have ceased to exist long ago. In the early days burning oil was the principal product; its manufacture gave the people a good cheap light for the first time, and its continuous existence had kept the price of lamp oil down to less than one-half of what it would otherwise have been. When this country was flooded with foreign lamp oil the retorts were changed to make heavy oil and solid paraffin. By any by when these were imported in great quantities the retorts were lengthened to increase the sulphate of ammonia. The yield of sulphate was trebled. But with gasworks, gas-producer plants, ironworks and coke works all producing ammonia

and with Niagara and the waterfalls of the world harnessed up to create combined nitrogen from the atmosphere, there was nothing left to fall back on. Except, perhaps, that farmers might be educated to use more ammonia and so increase the demand. No doubt the home-made sulphate of ammonia was a better and safer manure than foreign nitrate of soda, if only it was applied at the right time and the soil kept neutral with small doses of lime. With Government and Parliament taking an interest in science, the demand might increase with the supply and a price be obtained that might keep this industry still in existence and able to pay a dividend. The war had greatly increased the price of the shale products, but it had at the same time greatly increased the cost of metal materials, wood, coal, labour, etc. There was difficulty in getting coal enough to keep going, difficulty in getting materials forward in time, difficulty in getting men to do repairs, etc. Many hundreds of the best experienced men from mines and works had joined the Army, replaced to some extent by any kind that could be procured. Employment in oil works working in three shifts was not the most suitable for women, but they had women in the offices, candleworks, and other possible places. It had been suggested that if oil shale became scarce the Scotch companies should tackle the question of getting the same products from peat. That was a difficult problem; but it was satisfactory to know that in Ireland at Portadown there was a successful production of power from peat gas.

### Zaaiplaats Tin.

The results for the month of August, 1916, were as follows:—Days run, 27 days; ore milled, 2,509 short tons; residues re-treated, 736 short tons; concentrates won, 28 long tons; average value of concentrates, 69 per cent. metallic tin; estimated loss for the month, £534; adjustments in respect of estimated values of previous shipments, nil; loss declared for the month, £534; capital expenditure, nil. Note: The revenue for the month has been calculated on the basis of tin at £165 per ton.



## BOKSBURG FIRE-CLAYS.

THE following discussion on Dr. P. A. Wagner's paper, entitled "An Interesting Outlier of Karroo Rocks to the North of Olifantsfontein Station on the Germiston-Pretoria Railway," was read at the Geological Society's meeting on Monday evening by Mr. W. G. Holford:—Dr. Wagner's paper on the outlier of the Karroo rocks to the north of Olifantsfontein Station on the Germiston-Pretoria railway is not only interesting from a geological point of view, but it furnishes information of commercial value to the earthenware manufacturer, and, incidentally, to those interested in the development of South African industries. In this connection one of the features of real value in the paper is the list of analyses of representative samples of fire-clay from the Olifantsfontein area in comparison with the theoretical composition of kaolinite, and of fire-clays actually being worked in Europe. A reference is also made to an analysis of fire-clay occurring in the coal measures, Boksburg. Referring to the latter, it is possible that Dr. Wagner is not aware of the extensive commercial use to which fire-clay from that area is being put. I therefore venture to submit a series of analyses of samples which I took from the pits of the Boksburg Brick and Fire-Clay Company, which, I think, will be a useful addition to the analysis already dealt with, and place the comparison in the light it deserves. The occurrence of the clay beds is identical with that described in Dr. Wagner's paper as occurring at Olifantsfontein, both in composition and origin, though possibly not so great in extent. The beds, which are of varying composition, are lenticular. This is owing to the conditions of deposition. They are overlain in some places by surface detritus to a depth of three feet in which an admixture of clay nodules and sand is found, and in others by a coarse grit averaging, say, five feet in thickness. The fire-clay

beds consist of fine mudstone shale, either white or cane coloured, the latter in small and distinguishable areas. These beds are overlaid in patches by a plastic clay, the main bed averages about 10 feet in thickness. Underlying this bed is to be found a fine sandy material passing into a stratified deposit of ganister, containing the characteristic irregular unworn particles and ice-worn pebbles found in the glacial (dwyka) conglomerate. This bed was sampled over an average of five feet of thickness; it had, however, the appearance of being much thicker. The following results were obtained from these samples:—

	I.	II.	III.	IV.	V.	VI.
Si O <sub>2</sub> (Free) ...	Nil.	Nil.	Nil.	Nil.	65.40	87.60
Si O <sub>2</sub> (Combined) ...	48.40	44.70	46.60	46.55		
Al <sub>2</sub> O <sub>3</sub> ...	37.00	41.60	39.40	39.30	25.60	9.10
Iron Oxides ...	1.10	.40	—	.75	.50	.40
CaO ...	—	—	—	—	—	—
MgO ...	Trace	Trace	—	—	Trace	—
Alkalies ...	—	—	—	—	—	—
Water ...	14.30	14.40	14.00	14.35	9.40	3.40

Total ... 100.80 101.10 100.00 100.95 100.95 100.50

I.—Cane-coloured fire-clay. II.—Whitish-coloured fire-clay. III.—Theoretical composition of kaolinite. IV.—Equal parts of Nos. I. and II. V.—Plastic clay in pockets. VI.—Ganister, forming the matrix of the dwyka conglomerate. These analyses were made by Mr. S. B. Bilborough, of Johannesburg, and in his covering remarks on them he says: "That the alkalies in these clays have been put down as nil, but, of course, there is really no such thing in science, they are all of them bound to contain traces, but what is meant is that the alkalies can be neglected from a practical point of view."

A special meeting of the Rhodesia Small Workers' and Tributors' Association was held last week to discuss the question of the use of explosives raised by the Secretary for Mines. The Chairman explained briefly the object of calling a special meeting. The matter was of great urgency. The Imperial Government had before approached the mining community of South Africa, asking that every care should be taken in the use of nitro-glycerine. Now, evidently, a more critical period had arrived when the Government contemplated more drastic steps. In response to the urgent representations of the Imperial Government, the Union Government was taking steps to reduce the consumption of glycerine and had prohibited the export to Australia of all explosives containing over 50 per cent. of nitro-glycerine, and in a telegram to the Rhodesian Mines Department asked for their remarks "before taking steps to limit blasting gelatine to Rhodesia." In turn, the Mines Department asked for their, the Small Workers', views. Referring to some of the low-grade explosives, several members stated they had tried them and found them inefficient, and it was remarked that there were mines in this district where blasting gelatine was essential. After the discussion it was resolved to communicate by wire with the various manufacturers asking for particulars of their substitutes for blasting gelatine and to get all other information possible on the subject so that the matter could be dealt with further at the ordinary monthly meeting to be held on Saturday, the 9th inst.

A special general meeting of the Geological Society of South Africa was held last Monday night in the Chamber of Mines to consider the question of merging their Library with the Seymour Memorial Library. The idea had been suggested, said the Chairman, by Dr. Corstorphine, and had met with the general approval of the members. The Chairman (Dr. P. A. Wagner) moved the following resolutions: "That the Geological Society of South Africa agrees to merge its collection of books, journals and future exchanges with the Seymour Memorial Library, on condition (a) that the Society has the right to appoint annually two members to the Library Committee, one of whom shall be appointed on the Book Selection Committee, and that the Society's collection of books should be made a nucleus of a geological section of the Seymour Memorial Library, this section to have its own catalogue; (b) that the Seymour Memorial Library remains as a technical and scientific reference library open to the public, and as such continues to be housed in the centre of the town of Johannesburg." Dr. Corstorphine seconded the proposal, explaining that he was interested in both concerns, being Chairman of the Seymour Memorial Library. Most of the money left for the support of that Library had been invested in properties to provide a permanent income, but these properties had decreased very considerably in value, and the Library was not in a flourishing condition from that point of view. In other ways, however, it was flourishing, and the members of the Society must

appreciate the efforts of the committee to keep it up-to-date. The trustees were the members of the Council of the School of Mines. They housed the Library free, and there was enough money to provide for shelving, etc., whilst the purchase of books was provided for by the Government, the Town Council, the Council of Education and the various technical societies of the town. The School of Mines recently put a second room at the disposal of the Library and wished to proceed, as trustees, to equip this room and get the books better arranged. For seven or eight years the Geological Society had their books housed there, but they were not part of the general Library. The new arrangement would enable them to have all the geological books together, because the librarian of the Seymour Library would be responsible for that. The Library was open to the public and was conveniently housed. The resolutions were adopted by unanimous vote.

Diamonds have been discovered on Mr. Bothma's farm Badspruit, in the Aliwal North district, 56 having been found up to August 31. The stones vary in colour, the size ranging from about four carats to that of a pin's head. Work has been going on at the farm for about two months, the strike being made on that part of it known as Sandfontein, an old outspan. Badspruit is situated about 15 to 16 miles down the river from Aliwal North, and it is stated that this is the first find of stones ever made south of the Orange River. So far, although indications are reported by several prospectors as good, no finds have yet been made on the Commonage.

## CORRESPONDENCE AND DISCUSSION.

### Daggafontein Conversion.

To the Editor, *South African Mining Journal*.

Sir,—It is reported that old Daggafontein shares may have to be sent to England for conversion into the new scrip, and if such is the case the holders in South Africa and Johannesburg would be grateful if the popular sponsors (the Consolidated Mines Selection Company) would facilitate matters by receiving the shares here and forwarding them to England, and so save shareholders endless trouble.—Yours, etc.,

OLD SHAREHOLDER



## THE PLATKOPPIE FLOTATION.

### Vendors' Remuneration—Allocation of Capital—Points from the Prospectus.

THE prospectus of the Platkoppie Exploration Company, Ltd., has reached us. The company is to be incorporated under the Transvaal Companies Law of 1909, with a nominal capital of £20,000, divided into 20,000 shares of the nominal value of £1 each. The capital will be appropriated as follows:—Cash for working capital, £7,500; cash to vendor company, £2,500; to be provided by the issue of 10,000 shares at £1, £10,000; to vendors in shares—issued as fully paid up, £7,500; to reserve shares, £2,500—£10,000. 10,000 shares are now offered for public subscription at par, payable as follows:—On application, 10s. per share; on allotment, 10s. per share. The company will proceed to allotment as soon as 7,500 shares have been subscribed. The directors are: Messrs. Minett Edward Frames, Albert Victor Lindbergh, George Walter Joyce MacFarlane, and two other shareholders to join the board after allotment. The secretary is Mr. C. F. W. Burbury. The prospectus adds that the Platkoppie Exploration Company, Ltd., is formed: (1) For the purpose of acquiring from the vendor company prospecting option contracts covering the whole of the mineral rights of the farm Platkoppie No. 63, in the mining district of Heidelberg, in the Province of the Transvaal. (2) For the purpose of prospecting for gold the line of the Nigel Reef or Main Reef Leader, the outcrop of which has been located on this farm for a distance of four miles. The farm Platkoppie is some 3,400 morgen in extent and is situated about 15 miles nearly due south of Heidelberg, in the Province of the Transvaal. The vendor company is the Platkoppie Syndicate, Ltd., a private company registered with limited liability under the Company Law of 1909 and having its registered office at Ginsberg Chambers, Johannesburg. The vendor company is also the promoter. The vendor company holds cession of two prospecting option contracts over Platkoppie: (1) From Mrs. Robertson, owner of one-half undivided interest in the mineral rights of the farm; and (2) from the Estate late Henry Blaine, owner of the other half of the said mineral rights. The original contracts are dated 21st September, 1915, and 25th September, 1915, respectively, and the cession to the vendor company is dated 20th October, 1915, and is duly registered against title. Each contract is for three years, of which about ten months have run. These contracts can be inspected in the secretary's office. The vendor company also holds by cession from Mr. John Moffat, the company's manager, who discovered the new line of reef, such discoverer's rights as may be granted him in respect of Platkoppie. Such rights will be ceded to the Platkoppie Exploration Company, Ltd., as soon as they have been granted to Mr. Moffat. The purchase price payable to the vendor company is £10,000, of which £2,500 is payable in cash and the remainder by the issue to the vendor company of 7,500 fully paid up shares in the proposed company of the nominal value of £1 each. The prospectus goes on to state:—"The vendor company has since October last been engaged in endeavouring to locate on the farm by means of shafts and cuttings the Main Reef Leader or Nigel Reef outcrop, and to prove its geological horizon. In this the company was entirely successful, as will be seen from the attached report of Dr. G. S. Corstorphine, Principal of the South African School of Mines, and late Consulting Geologist to the Consolidated Gold Fields of South Africa, Ltd. Dr. Corstorphine's reputation as an eminent geologist is world-wide, and the conservatism of his reports on new ventures of this nature in the past is well known. The definiteness of his report on the farm Platkoppie is therefore the more valuable. Dr. Corstorphine has kindly consented to assist the proposed company in locating what boreholes may be necessary, and generally in advising on the exploratory work in contemplation. It will be seen that Dr. Corstorphine identifies the reef exposed as Main Reef Leader (i.e., Nigel Reef), and traces its course across the farm Platkoppie. He says: "There is some old prospecting work on Nooitgedacht and on the northern portion of Elandsfontein, but the continua-

tion of the Nigel Reef on the southern part of Elandsfontein and on Platkoppie is exposed for the first time in the present prospecting work. This means that some four miles of unprospected outcrop have been added to the stretch previously known and partly prospected."

#### PROSPECTS.

It is thus apparent that the vendor company has discovered an important extension of the Main Reef series and located an entirely new area. It will be the function of the Platkoppie Exploration Company, Ltd., to prove the gold values of this new area on the farm Platkoppie along some four miles of outcrop and three miles of dip approximately. The necessity of opening up new gold-bearing areas is urgent in view of the recently-published report of the Government Mining Engineer. Mr. Kotze estimates in that report that in eight years' time more than one-third of the present gold mines in the Witwatersrand area will have been worked out. Hitherto in Far East Rand development attention has been mainly confined to, and is still being concentrated on, the area to the north of Heidelberg and the Nigel mines, and development work in this region is mostly being carried on at deep levels involving great expense. The new discovery offers an unprospected Main Reef outcrop proposition of a magnitude nowhere else available at the present time on the Far East Rand, or anywhere else for that matter. Its importance at this juncture, should its gold values justify expectations, can hardly be over-estimated. Dr. Corstorphine's report on the new line proves the continuity of the Nigel Reef to a point some 15 miles south of Heidelberg, thus opening up a fresh outcrop area of vast extent, the northern portion of which has hitherto received insufficient attention, while the southern portion, comprising the whole of the farm Platkoppie, is entirely virgin ground. In no other locality does the Far East Rand afford an outcrop proposition of the extent and prospects of that now offered, and no other flotation of this nature now before the public presents such unique features or such favourable prospects as are contained in this proposition." The geological sketch map of the area, that recently appeared in our pages, is included with the report.

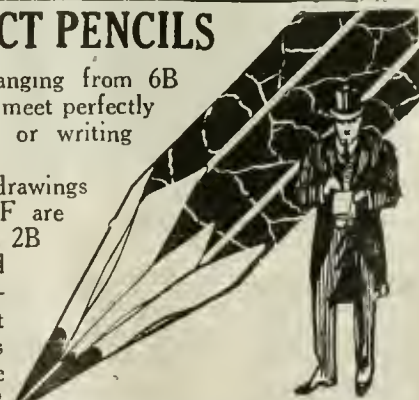
#### The Sheba in August.

The following are particulars of the output of the Sheba mine for August:—Tons crushed, 6,531 tons; fine gold yielded, 2,099 ozs.; working expenses, £7,180; development, £1,750; estimated loss, £461; capital expenditure, £2,851.

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## MINE MECHANICS NEW WAGES AND HOURS AGREEMENT.

### War Bonus to Mine Employees.

On Wednesday afternoon the following minute of agreement between representatives of the Chamber of Mines and representatives of the mine mechanics (as defined by the joint agreement of July, 1915) was handed to the Press for publication:—"The parties hereto, having consulted and received the sanction of their respective principals, agree to the following terms of settlement of the questions in dispute between them:—(1) That a 48 hours week, at a standard rate of 2s. 6d. per hour, be brought into force now for mechanics as defined in the joint agreement of July, 1915, but that the mines undertake, and the unions agree, that 50 hours per week will continue to be worked as at present until three months after the declaration of peace, the extra two hours to rank as overtime; (2) That overtime rates remain as at present, but based on 2s. 6d. per hour; (3) That the mechanics do not participate in the Chamber's war bonus scheme; (4) That the unions guarantee not to raise the questions of wages, hours and overtime until at least three months after the declaration of peace." This was signed at Johannesburg on September 13 by Messrs. E. A. Wallers, Arthur French, Frank G. A. Roberts and W. Gemmill, representing the Chamber of Mines, and by Messrs. A. Crawford, R. H. Miller, James Pender and D. Colrairie, representing the mechanics. The war bonus question was dealt with separately, and the following summarises the agreement arrived at under this head—the agreement as regards the war bonus applying to all mine employees:—"In July, 1915, the Witwatersrand gold mines associated

in the Transvaal Chamber of Mines decided to pay a war bonus of 7s. per week to all married white employees and single white employees with 'total' dependents earning £4 10s. per week or less, such allowance to continue for the duration of the war and for three months thereafter. The bonus was given on account of an increase of 8 per cent. which had taken place in the cost of living on the Rand, and under it the lower paid employees received a bonus equivalent to the whole of the increase in their cost of living, while the higher paid employees continued to bear either the whole of such increase or a portion of it. In the twelve months that have elapsed since the introduction of this bonus, the cost of living has increased by a further 5 per cent. (to 13 per cent.), and the gold mining companies associated in the Chamber have now decided to increase the war bonus to the following scale as from September 18, 1916:—Employee normally earning up to and including £18 per month, bonus £2 10s. per month. Employee normally earning over £18, but not more than £22 per month, bonus £2 per month. Employee normally earning over £22, but not more than £26 per month, bonus £1 10s. per month. Employees earning over £18 per month, but less than £18 10s. per month, to receive a bonus that will bring their total earnings up to £20 10s. per month; employees earning over £22, but less than £22 10s. per month, to receive a bonus that will bring their total earnings up to £24 per month; and employees earning more than £26 per month, but less than £27 10s. per month, to be made up to £27 10s. per month."

### New Companies.

Petroleum Industries, Ltd., corner Wepener and Ramsay Streets, Booyens, Johannesburg; capital £200.  
Cajee Brothers, Ltd., 42 Market Street, Krugersdorp; capital £1,000.  
Farmers' Association (Heidelberg), Ltd., Erf 393, Viljoen Street, Heidelberg; capital £1,000.  
Scotts, Ltd., 28 Beckett's Buildings, President and Harrison Streets, Johannesburg; capital £3,000.  
Multiplex Advertising Company (Transvaal), Ltd., 60 National Mutual Buildings, corner Market and Rissik Streets, Johannesburg; capital £500.  
The Kraalkop Farmers' Agency, Ltd., Wulfsohn's Store, Farm Kraalkop No. 290, District Potchefstroom; capital £2,500.  
Hassen Saleh Mia, Ltd., 68b Bree Street, Newtown, Johannesburg; capital £1,000.  
Sunshine Settlements, Ltd., 52a Commissioner Street, Boksburg; capital £300.  
E.H. Trust and Agencies, Ltd., 62 Bree Street, Newtown, Johannesburg; capital £1,000.  
The Mount Anderson Gold Mining Company, Ltd., Lange Street, Lydenburg; capital £150.  
Surkhey, Ltd., 77 Grant Avenue, Norwood, Annex Johannesburg; capital £750.  
Organic Industries, Ltd., Clark Street, Ermelo; capital £1,000.  
Gabru, Ltd., 24 Market Street, Johannesburg; capital £500.  
Akhalvaya, Ltd., 74a Bree Street, Newtown, Johannesburg; capital £1,000.  
Arcade Bar, Ltd., 57 Fifth Floor, National Mutual Buildings, corner Rissik and Market Streets, Johannesburg; capital £500.  
Kew Orchards, Ltd., Jeppe Arcade, 110 Commissioner Street, Johannesburg; capital £1,200.  
Essackjee, Ltd., corner Gordon and Eighth Streets, Norwood, Johannesburg; capital £500.



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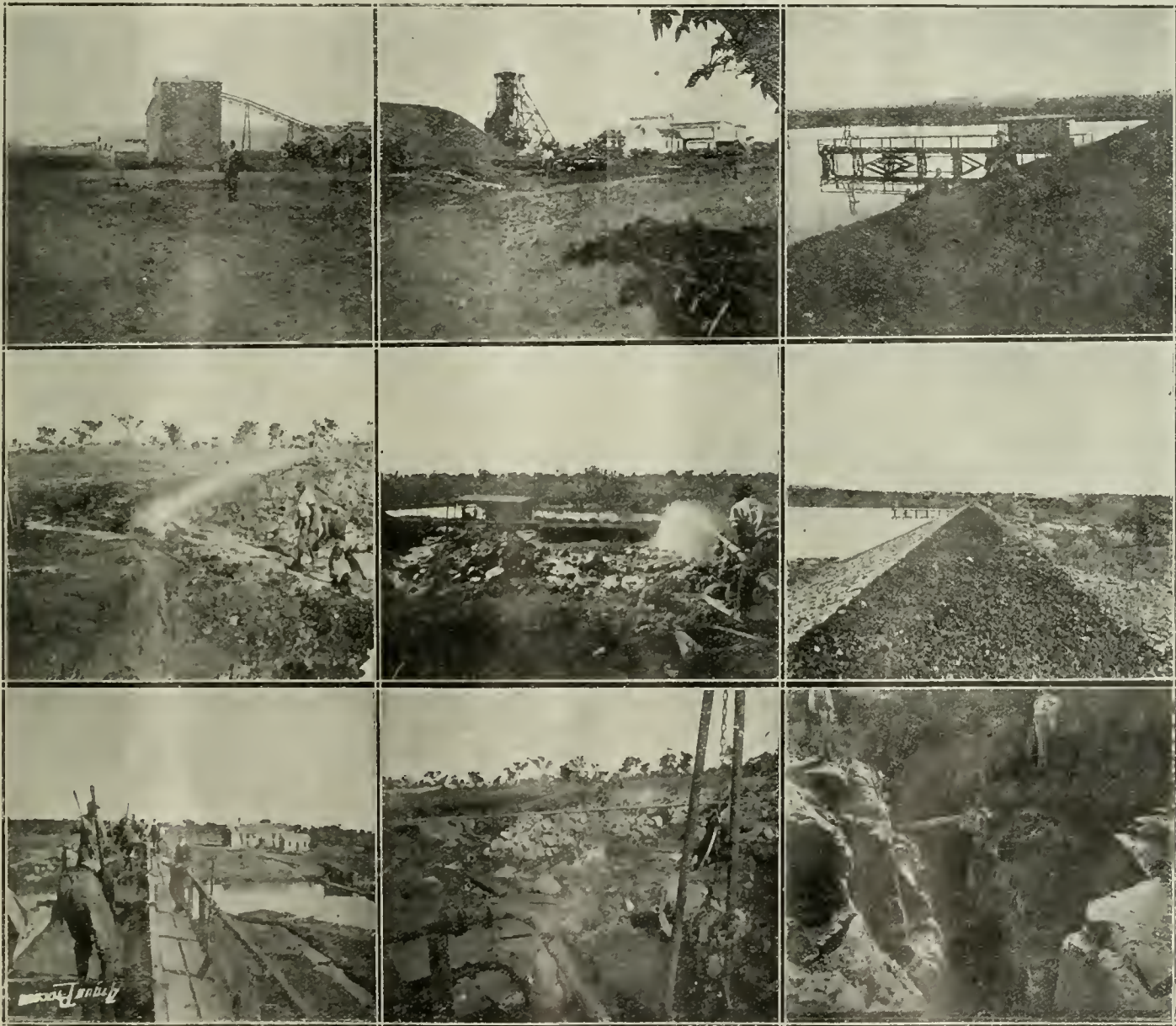
THE YEAR WITH THE ROOIBERG TIN MINE.

Working Profit, £25,397—Report of the Consulting Engineer—Improved Ore Position.

For the year ended June 30th, 1916, the revenue of the Rooiberg Minerals Development Company, Ltd., from tin concentrates amounted to £117,252; the expenditure on working account was £91,855. The working profit for the year was thus £25,397. A further £47 was derived from interest, etc., making a gross profit of £25,444, which, together with £15,486, brought forward from last year, was dealt with as follows:—Interim dividends Nos. 10 and 11 of 5 per cent. each, £18 000; expenditure on improvements, £9,350; directors' special remuneration, £900; Government taxes, £1,503; carried forward, £11,177; total, £40,930.

(9·87 per cent.), 2,754 short tons; ore milled, 28,133 short tons; sands and slimes re-treated, 8,258 short tons; total treated, 36,460 short tons; concentrates produced, 1,025 long tons; average grade of concentrates produced, 68·93 per cent. metallic tin. The water storage reservoirs and boreholes have provided an ample supply of water.

In his report for the year ended the 30th June, 1916, Mr. E. J. Way, the consulting engineer, says:—The following are the principal matters of interest with which I propose to deal: (1) Results of operations, 1915/16, as compared with the results of the previous three years; (2) ore reserve position; (3) alluvial sluicing; (4) percentage of extraction of



VIEWS AT ROOIBERG TIN MINE.—THE MILL AND DUMP, RESERVOIR, AND SLUICING OPERATIONS.

The sum of £21,450 was set aside as a reserve fund. All expenditure upon development and exploration, amounting to £27,875, has been charged to working costs. The average price of metallic tin, on which the sales of concentrates for the year were effected, was £161, as compared with an average of £151 for the previous year. Interim dividends Nos. 10 and 11, of 5 per cent. each have been declared during the year. The following are the results of the year's operations:—Number of stamps, 10; number of days (24 hours) concentrating plant ran, 294; ore mined, 27,913 short tons; ore taken from stock in bins, 69 short tons; ore taken from prospecting dumps, 2,974 short tons; waste sorted out

metallic tin; (5) general position and prospects of the company. The following table shows the principal results of working for the past four years:—

	1912-13.	1913-14.	1914-15.	1915 16.
Tons milled .....	35,917	40,643	37,263	36,460
*Long tons M.T. produced .....	831·7	886·6	730·9	706·5
Revenue per ton .....	£5 2 11	£3 15 3	£2 18 8	£3 4 3
Total working costs per ton .....	£2 13 10	£2 7 9	£2 2 8	£2 10 5
Total working profit .....	£88,193	£55,805	£29,802	£25,396
Grade of ore milled (M.T.) .....	3·56%	3·181%	2·82%	3·02%
Percentage extracted .....	72·85%	78·81%	78·27%	77·95%
Average price at which M.T. sold	£218	£174	£151	£161



\*Metallic tin is given in long tons, as the buyers deal in long tons. Working costs show an increase of 7s. 9d. per ton as compared with last year, owing to increased expenditure on development during the period under review. The position of the estimated ore in sight at the end of the financial year is as follows: Northern and East End Old Workings, 19,957 tons, value 2.50% M.T.; South End and Intermediate Workings, etc., 4,972 tons, value 3.20% M.T.; ore at grass, 3,730 tons, value 6.25% M.T.; total, 28,659 tons, value 3.10% M.T. During the year under review the accumulated middlings and slime from the old plant were finished. The estimate of tonnage was exceeded by only 238 tons. The manager has again based his estimate of ore reserves on a conservative basis. It is to be noted that the position has improved with regard to this detail, and this improvement is due to the energetic policy which is being pursued, and to the system under which no part of the company's mine is left unexplored. The information regarding sources of ore mined for the year under review is given in detail in the manager's report. The ore mined for a period of seven years and three months ended 30th June, 1916, is as follows: Ex reserves, 40,666 tons, percentage 22.8; ex supplementary fillings and lodes in excess of reserves and from development faces, 108,334 tons, percentage 60.7; ex prospecting dumps, 29,255 tons, percentage, 16.5; total, 178,255 tons, percentage 100.00. During the year under review progress was made in carrying out the necessary work for alluvial sluicing so that operations could be commenced. There were unfortunately delays owing to the non-delivery of certain essential parts of the machinery required, but the general construction was finished at about the end of the financial year and a preliminary start was made. On the whole the plant has been working satisfactorily, but, as you are aware, it was decided to start at first only on a comparatively small scale in order to ascertain the best way of most economically handling the material on a larger scale. It may be said that the plant on the present small scale has started almost without a hitch, but owing to the fineness of the tin in the alluvium, that portion of the plant which is set apart for its catchment is not equal in capacity to the material which one monitor can dispose of; and recommendations have been made to you to increase the sluice boxes and riffles in which the tin is caught. The tin which will be caught will be of great assistance in meeting the cost of the work, which, as before pointed out to you, was primarily started to bare the underlying formation and to render prospecting for new fissures and lodes more easy and exact. At the time of writing a fair sized paddock has been laid bare, and it is at once evident that this will very greatly assist in prospecting for new tin bearing fissures, as the country rock can be minutely inspected. Some difficulty has been encountered in the disposing of tailings, but this was foreseen, and it was decided to run the plant for a time in order to find out from the nature of the material which had to be dealt with, the best manner of disposing of this product. In the summer time, when water is plentiful, these tailings can be disposed of easily and at small cost, but during the winter months, where care has to be exercised in the use of water, the return system must be employed

in order to render operations continuous. It is somewhat early yet to give a definite statement as to the exact bearing of these operations upon the earning of additional profit, as the alluvium varies considerably in its tin contents. The extraction during the year in reduction works, based on the assumption that the value of the final tailing plus recovery give the correct value of the battery pulp, was 77.95 per cent. metallic tin. This is computed in exactly the same manner as was done for the previous year and shows a slight falling off of .32 per cent. as compared with that year. The tailing leaving the mill after treatment averaged .63 per cent. metallic tin. During the whole year careful investigations have been continued in the devising of means for adding to and improving the present methods of extraction. In my report to you last year I drew attention to the fact that it had been decided to erect a sufficient number of Deister tables to treat the current product which will pass through a 200 mesh screen, and which comes daily from the mill. During the year five of these tables were erected, and they are adding on the average about two tons of metallic tin per month to your product, which otherwise would not be obtained. Careful investigation shows, however, that the rag frames are more efficient than any other section of the slime plant in saving tin. You will recollect that you originally started with 42 of these frames, which were subsequently doubled in number, and it is the tailing from these frames which is subsequently treated by the Deister tables. Experiment has shown that a further increase of these rag frames would substantially add to the output from current ore, and it has been decided to increase the number of these frames by 50 in the meantime and at a later date another 50 frames will be added. Should this additional number be in excess of actual requirements for current ore, the technical advisers have in view the preliminary experimental treatment of the large stock of accumulated slime, and it is the tailing from all these sections of the plant, viz., rag frames, round frames, Acme tables and Deister tables which it is hoped eventually to treat by means of centrifugal separation. This matter was referred to in my report of last year, and I understand that one of these continuous centrifugal separators is on its way to a neighbouring tin mine, and the result of its working will be watched with very great interest. Development and exploration were carried on with great vigour during the year to make up for the time lost during the previous year. It is satisfactory to be able to report that this policy has resulted in the ore reserve position being improved. The policy laid down by you in 1910 of vigorous effort in this direction has been amply justified, and the underground position to-day on the company's mine is more satisfactory than it has been for some years past. The fluctuating price of the metal itself will always have a varying effect upon the results of working, and it is somewhat difficult to state definitely to what price tin will have to fall before your operations become unprofitable. Given, however, a fair price for the metal itself, coupled with the long experience which we now have of the occurrence of bodies of profitable ore which are not included in the estimation of ore reserves, I believe that your venture is in a sounder position to-day than it has been at any time during the past three years.

## ANSWERS TO CORRESPONDENTS

*All inquiries addressed to the Editor must bear the writer's name and full address. We cannot reply to inquiries by letter, but telegrams with replies prepaid will be answered. Correspondents are requested to write their names and pseudonyms distinctly.*

- "Dagga."—Each old share will ultimately receive half a new share and quarter of an option.
- "J. F. B." (Capetown).—The rules of the Johannesburg Stock Exchange do not permit its members to advertise.
- "Antimony."—We should leave the venture alone.
- "Oceana Developments."—Particulars are not available here, but will be published as soon as received from London.
- "Capital."—Address the President, National City Bank, New York.
- C. J. Rutledge (Port Pirie, South Australia).—The question cannot be answered off-hand. Better follow future issues, and write to us again later.
- "Enquirer" (Maraisburg).—(1) Much better consult a good solicitor, who will do the necessary in effecting the transfer of the claims. (2) Your solicitor will advise you.
- "Lucretius."—(1) We know nothing of the gentleman's merits as a "reliable consulting engineer." (2) Yes, values are improving slightly.
- "Dilwyn" (Randfontein).—(1) Towards the end of this year or early next year. (2) Yes. (3) Very speculative.
- "B.S.B."—We do not profess to initiate speculation, i.e., to give sharemarket "tips."
- "E.B.," "W.P." and Others.—We hope to cover all your questions regarding Daggafontains in our next issue.

The report of the Transvaal and Rhodesian Estates for 1915 states that the sanction of the Court for the reduction of capital by the cancellation of 50,506 shares was granted on 6th July, 1915, and the issued capital is now £715,007 15s. Having regard to the conditions imposed by the war, the revenue derived from rentals is satisfactory. The directors are of opinion that the promising developments in the goldfield of the Eastern Rand will, if they continue, have a great influence towards increasing the value of the company's buildings and town sites in Johannesburg. The ranching estates in which the company is largely interested in the Gwanda and Tuli districts have been greatly improved during the period under review. On the company's Kent estate cattle breeding has been continued with marked success. The present herd consists of over 600 head. A considerable portion of the land has been placed under cultivation for mixed agricultural purposes, and the development of the estate generally is most satisfactory. In regard to mining interests, the effects of the flooding at the Fred mine proved to be more serious than was anticipated at the date of the last meeting, and it was not until towards the end of 1915 that normal mining operations could be resumed. The ore reserves have, however, been maintained, and it is confidently expected that with the early completion of the installation of the new compressor plant and machine drills they will be materially increased. The main ore shoot has been met with by a drive from the main shaft on the 6th, the lowest level in the mine, where so far it is rich, giving an average value of over 2 ozs. per ton for the 30 ft. driven, over a width of 2 ft. 6 in. A resolution will be submitted to the shareholders reducing the directors' fees from £3,000 to £1,500 per annum.



## UNION TIN MINING PROGRESS.

### Very Satisfactory Position at the Rooiberg—Swaziland Tins Have Enormous Reserves—Leeuwpoort Forging Steadily Ahead—The Problematic Condition of Zaaiplaats.

THE report of the consulting engineer of the Rooiberg Minerals Development Co., Ltd., which appears in this week's issue of the *S.A. Mining Journal*, and the statement that of the consulting engineer of the Swaziland Tin, which was published in last week's paper, give an interesting review of the progress of two of the most important tin producing concerns in the country. The Rooiberg undertaking is, of course, the first on the list of the Union producers, by reason of its large annual return of concentrates, while the Swaziland Company, the third on the list, may be said to stand out alone as an alluvial proposition solely, a position which is further enhanced by the considerable returns which are periodically recorded. The reports of the second largest producer, the Leeuwpoort (African Farms) Tin Mines, Ltd., were issued earlier in the year, for the period ended 31st December, 1915, while those of the fourth on the list, the Zaaiplaats Tin Mining Company, Ltd., whose financial year ends on the 31st July, may be expected at an early date.

#### THE ROOIBERG.

A prominent feature of the last Rooiberg report is the falling off in the annual working profit from £29,802, as at the end of June, 1915, to £25,336 at the end of June, 1916. An examination of Mr. E. J. Way's very interesting tabular statement, however, shows that costs were nearly 8s. per ton higher during the latter period, and it is explained that this circumstance is due to the increased expenditure on development. It will be remembered that development was suspended for nearly eight months in the time of uncertainty that followed upon the outbreak of the war, and, as is usual in these cases, it has been necessary to make special efforts to recover lost ground. The diminution of the unforeseen ore known as "supplementary fillings" tended to aggravate the position, also, and the burden of making up for the reduced ore reserves has mainly fallen upon the operations of the last working year. No less a sum than £27,874 has been spent in this effort as compared with an amount of £12,693 incurred under the same heading in the 1914-1915 period. It is interesting to note, moreover, that only 30.8 per cent. of the total ore mined came from reserves for the year ended 30th June, 1916, while 50.3 per cent. was obtained from supplementary fillings, as unforeseen ore, and lodes in excess of reserves, and 18.9 per cent. from development faces, the figures for the preceding year being 42.72, 52.67 and 4.61 per cent. respectively. It is gratifying to find that the ore reserve is satisfactory, the ore in sight and at grass being 28,659 tons compared with the 26,205 tons, although it will be noted that the average value of the former is 3.10 per cent. M.T., while the latter was valued last year at 3.9 per cent. It is, nevertheless, a little higher than the estimated milling grade of the last two years. The estimate has nevertheless, as usual, been made upon a strictly conservative basis. The increase of the dressing plant, in order to catch as much as possible of the very fine tin, which is the bugbear of all tin collecting plants, is still under consideration, and it is proposed to augment the number of rag frames by a little more than 50 per cent. at an early date and to add a similar number of frames later on. The problem of handling the fine alluvial tin which is being sluiced by the new surface plant is receiving some attention. It is interesting to learn that this undertaking seems likely to achieve all that was expected of it, particularly in the way of exposing the surface of the solid rock, and facilitating exploratory work. Altogether there seems every reason for agreeing with the view of the consulting engineer that the venture is in a sounder position to-day than it has been at any time during the past three years. The satisfactory nature of the development, the knowledge that has been gained with regard to the best methods of treatment, and the useful results that are promised from the sluicing operations, to say nothing about

the £21,450 which have been set aside as a reserve fund to meet various emergencies, are all elements of strength that the company is to be congratulated upon.

#### SWAZILAND TINS.

It is unnecessary to say much about the progress of Swaziland Tins during the last financial year ended 30th June, inasmuch as the complete table presented by Mr. J. Jervis Garrard, the consulting engineer, gives the whole thing at a glance. The main features of the table are the figures which show that the quantity treated, in spite of a comparatively dry year, was well up to the mark, while the cost of treatment per cubic yard averaged 6.726 pence and the profit 4.793 pence, all general charges and head office expenses being included. Some 915,282 cubic yards were treated, yielding an average of 1.048 lbs. metallic tin, and the following comparative statement of estimated reserves shows that there is still a vast accumulation of excellent ground already proved ahead of the present workings:—

	Cubic Yard.	Av. value M.T. lbs. per Cub. Yard.
1914-1915 Estimate ...	2,056,266	1.47
1915-1916 Estimate ...	3,895,000	1.00

In addition to this, there are nearly five million cubic yards of material in sight, which it has not yet been possible to value.

#### LEEUPPOORT.

During the financial year ended 31st December, 1915, some 915 long tons of concentrates, of an average grade of 63.43 per cent. metallic tin, were recovered, the total working profit for the twelve months being £18,200. The comparative figures under these headings for the last two quarters are:—

	Concentrates Long Tons.	Average Value Metallic Tin per cent.	Declared Profit. £
1916			
March Quarter ...	266	62.57	9,320
June Quarter ...	250	62.54	7,102

The capital expenditure during the same period has amounted to £7,351. Improvements and additions to the plant and satisfactory development all point to a gratifying balance sheet at the end of 1916.

#### ZAAIPLAATS.

The unsatisfactory vagaries of the No. 13 ore body, together with similar disagreeable phenomena in the case of the No. 6 occurrence, have contributed to make things somewhat difficult at Zaaiplaats since the annual report and accounts of the company were published about twelve months ago. The forthcoming report and balance sheet will doubtless be looked forward to with some degree of anxiety, and interest will be taken in the statement as to curtailed expenditure which was decided upon by the board a little time back. The quarterly reports for the past twelve months show, briefly, as follows:—

	Concentrates Long Tons.	Average Value, Metallic Tin per cent.	Declared Profit or Loss, £
1915—October Quarter ...	210	69.2	4,974
1916—January Quarter ...	120	70.0	loss 411
April Quarter ...	102	71.5	3,091
July Quarter ...	99	68.1	loss 3,771

It may be noted that allusion was made in the last quarterly report to development that was being pushed ahead on the seams underlying the pegmatite on the T.C.L. lease, whence a large tonnage of ore had already been taken. This appears to be the most promising part of the property at the moment, but an unexpected improvement may occur elsewhere at any time.



## THE AUGUST OUTPUT IN DETAIL.

### Substantial Increase on July Figures.—Labour Supply Creeping Up.

THE gold output was declared last Saturday at 781,150 ozs., valued at £3,318,116, representing a very substantial increase of over 20,000 ozs., in value over £85,000, on the July return. August's output is the best for several months. The Witwatersrand was almost wholly responsible for the increase, but the outside districts were in sympathy with a slightly improved return. On the Witwatersrand most substantial increases were furnished by New Kleinfontein (Apex), Crown Mines, Ferreira Deep, Simmer and Jack, Robinson Deep, and Randfontein, Modder B. and Village Deep were responsible for the principal decreases. The chief figures were as follows:—

Total output	...	...	...	781,150 ozs.
Increase	...	...	...	20,063 ozs.
Value	...	...	...	£3,318,116
Increase	...	...	...	£85,225
Witwatersrand	...	...	...	752,940 ozs.
Increase	...	...	...	19,455 ozs.
Value	...	...	...	£3,198,288
Increase	...	...	...	£82,641
Outside Districts	...	...	...	28,210 ozs.
Increase	...	...	...	608 ozs.
Value	...	...	...	£119,828
Increase	...	...	...	£2,584
Stamps	...	...	...	9,742
Increase	...	...	...	35

#### INCREASES AND DECREASES.

	Value.	Increase.	Decrease.
Aurora	£18,350	—	£102
Bantjes Consolidated	26,327	747	—
City and Suburban	52,778	913	—
Consolidated Langlaagte	65,564	2,558	—
Consolidated Main Reef	42,490	2,952	—
Durban-Rodepoort	14,914	272	—
Durban Deep	35,235	1,597	—
Ferreira Deep	91,471	7,328	—
Ginsberg	15,674	438	—
Knight Central	28,124	—	697
New Heriot	24,289	281	—
Village Deep	81,064	—	3,462
Witwatersrand	54,893	—	229
Wit. Deep	50,905	—	722
Wolhuter	45,871	—	115
Brakpan	92,567	850	—
Crown Mines	233,234	11,571	—
Geduld	42,673	26	—
May Consolidated	9,740	—	854
Modder Deep	80,907	—	70
Princess Estate	29,207	—	480
Vogelstruis Estate	12,998	862	—
New Kleinfontein (Apex)	15,967	13,151	—
New Kleinfontein	66,685	—	2,268
Jupiter	28,230	1,486	—
Knights Deep	83,838	—	84
Robinson Deep	81,820	6,087	—
Simmer and Jack	65,776	7,315	—
Simmer Deep	64,400	3,284	—
Glenairn	14,132	—	234
Government Areas	78,906	2,188	—
Luipaardsvlei	24,297	89	—
Main Reef West	28,362	1,822	—

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	Value.	Increase.	Decrease.
Meyer and Charlton	36,913	2,035	—
Modder B.	95,778	—	3,538
New Goch	29,573	—	862
New Modder	115,657	—	667
New Primrose	17,518	476	—
New Unified	13,865	111	—
Nourse Mines	63,639	909	—
Rose Deep	77,241	4,312	—
Van Ryn	48,509	1,036	—
Van Ryn Deep	88,310	1,032	—
Village Main	41,585	2,230	—
West Rand Consolidated	41,568	2,635	—
East Rand Proprietary	200,747	—	26
Robinson	72,916	462	—
Rodepoort United M.R.	33,438	288	—
City Deep	123,354	2,459	—
Geldenhuis Deep	75,632	2,328	—
Langlaagte Estate	58,415	3,594	—
Randfontein	255,038	6,448	—
West Rand Central	—	2,553	—
Miscellaneous	7,299	—	392

#### OUTSIDE DISTRICTS.

Sheba	8,916	—	60
Glynn's Lydenburg	7,332	—	5,823
Barrett	1,223	—	30
Fairview	2,854	420	—
Sub Nigel	19,629	930	—
Quest	1,822	—	72
T.G.M.E.	37,975	4,877	—
Nigel	12,832	—	769
Miscellaneous	27,245	3,111	—

#### OUTPUT IN 1916.

	Ozs.	Value.
January	787,467	£3,344,948
February	753,594	3,201,063
March	796,689	3,384,121
April	754,672	3,205,643
May	777,681	3,303,377
June	761,764	3,235,767
July	761,087	3,232,891
August	781,150	3,318,116

#### NATIVE LABOUR RETURN.

The number of natives employed at the last day of the month by the Witwatersrand Native Labour Association and contractors was:—

On gold mines	194,112
On coal mines	10,086
On diamond mines	5,146
	209,344

The figures for July were:—On gold mines, 192,130; on coal mines, 9,932; on diamond mines, 3,339.

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## SOUTH AFRICAN TRADE: THE INCIDENCE OF COMPETITION.

THE figures of the last two years' imports into the Union (writes the Trade Correspondent of the *London Times*) are considerably misleading when consideration is given to the question of trade competition of normal times; while the European War will of necessity have a decided influence upon future trade conditions in South Africa not less than in other markets. The 1913 statistics and those of the years immediately preceding must, therefore, be the basis of any analysis of the incidence of competition, as the probable effects of the war must be the starting point for consideration of its extent in the future. On the bulk of imports into the Union there is a flat 3 per cent. Imperial preference. In other Dominions the preference is, on the whole, not only greater but more scientifically applied. The main reason for this anomaly is that the present tariff is a relic of pre-Union days; it is merely the continuance (excepting certain minor alterations or general increases in certain classes occasioned by the exigencies of protection or revenue) of the compromise between the conflicting interests of the four old self-governing Colonies, known as the Customs Convention.

### EFFECT OF THE PREFERENCE.

The fact that the preference is small, inadequate, and crudely applied, has most certainly had a bearing upon the incidence of foreign competition in the Union. In spite of the advantage it offers to United Kingdom firms, certain goods on which it is given are normally the media of highly competitive trade on the part of British, American, German and Swedish manufacturers—to name the competitors chiefly concerned. It is given also on goods the practical monopoly of United Kingdom suppliers, when the foreigner obviously needs no repression, as well as on others the monopoly of (say) the United States, when the British manufacturer does not benefit simply because he is a non-competitor and cannot produce them. The assertion, not always true, is sometimes made that South Africa is not "worth while" from the point of view of the British exporter of goods subject to considerable competition. Nevertheless, while it is reasonable to expect that manufacturers will turn their attention to the more profitable areas of demand, it is unwise for them to leave to the mercy of the foreigner any important market (especially if it be a British possession); he has a predisposition to take the ell if the first inch be conceded. What others do not want is to him the means whereby he may possibly secure what they have and wish to hold.

### AMERICA OUR CHIEF COMPETITOR.

For the time Germany may be left out of consideration; the post-war trade policy of the Allies, as recently indicated, may put a check upon the extent as well as the methods of German competition. Equally important, however, has been (and still more so will be) America. She suffers, possibly, from some limitations to her mercantile marine and from her comparative remoteness geographically. But these as deterrent factors are almost negligible; she has always overcome them. In most respects South Africa is a "cheap" market, although in some lines it will pay the price asked for quality. Price is, however, the more important factor. Nevertheless, its taste is slowly improving. "British quality" is often regarded (however incorrectly) as out of the reach of the man with shallow pocket; at the same time large quantities of the Union's imports of foreign (including American) origin are, on a basis of fair comparison—price and quality combined—truly competitive with products from British factories. Some of these are: Motor cars and parts, £383,800; agricultural implements, £165,400; mining machinery, £161,200; fencing material, £150,400; hardware (general), £71,800; electrical machinery, £51,000; furniture (general), £41,000; tools, £36,300; iron piping and fittings, £34,600; pumps, £30,900; electric fittings, £29,600; manufacturing machinery, £29,500; lampware, £15,100. The figures represent the 1913 imports of the Union (value packed at works). Most careful examination of the reason for America's position therein will repay every interested competitor.

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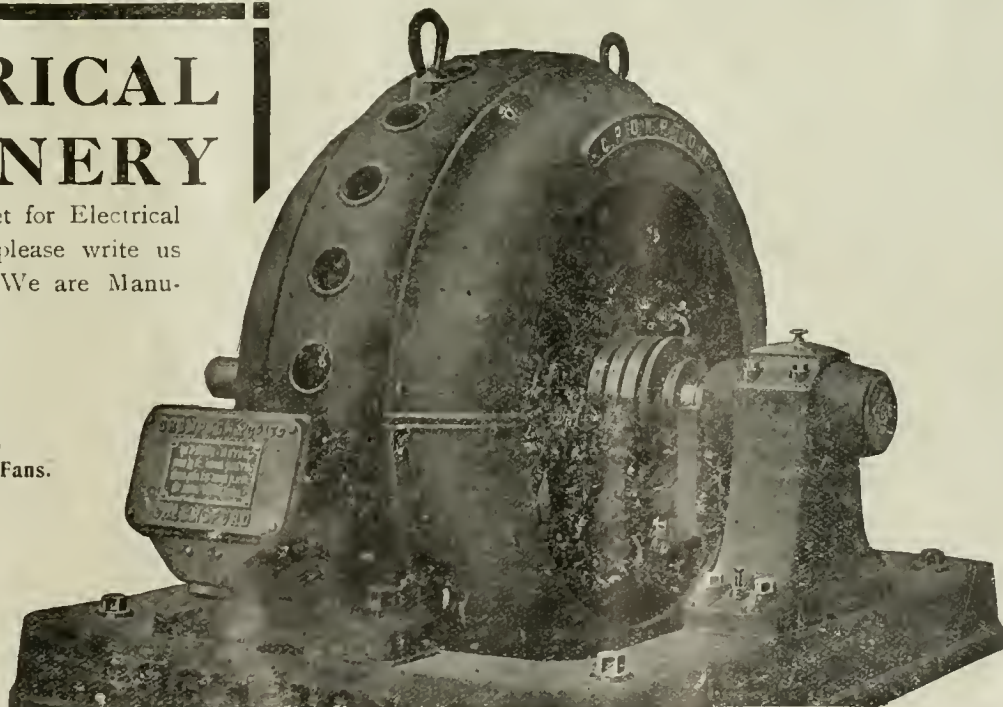
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## THE WEEK IN THE SHAREMARKET.

### Irregular—Advances Maintained—The Question of Selling to London.

On Saturday morning Springs were again the opening feature, but after a further advance fell away somewhat at call. Business was generally active, though the Modderfontein trio were given a bye. The main advances were in Brakpans, Mines Selections, Government Areas, Rand Selection, and Sub Nigels. On the other side City Deeps, East Rands, Gedulds, Kleinfonteins, and Van Ryn Deeps were losers. Later on Kleinfonteins and Sub Nigels were both easier. On Monday the market was somewhat irregular at the call. Mines Selections, East Rands, Gedulds, New Elands, and Welgeaachts were to the good. Government Areas went a trifle easier, and for the first time since they became an active factor there was no dealing in Sub Nigels. Modder Deeps were firm and unchanged, while New Modders were decidedly out of favour, the first bid of eighteen guineas being withdrawn and one of 3s. lower substituted. Kleinfonteins looked like going harder, but the supply always seems to be in excess of the demand. The market opened easier on Tuesday, especially in the favourite stocks, such as Springs, Van Ryn Deeps, Rand Selections, New Modders, Modder Bs, and Gedulds. Eland Diamonds and Knight Centrals were also lower. Slight gains were made by Kleinfonteins, Sub Nigels, Modder Bs, and Mines Selections. Wednesday morning, notwithstanding favourable cable news from London, produced the dulllest market known for months past. One stock alone showed any improvement, and that was Modder B. One or two were unchanged, but practically the whole list showed reductions. The new Government five per cent. stock was quoted for the first time, eliciting several buying offers at par. The market was steady throughout the day with little change in prices. Prices brightened up on Thursday morning, with advances in most stocks, notably City Deeps, Springs, Sub Nigels and Nourse Mines. Heriots are also steadily creeping up. Speculators are naturally enquiring how much longer the restriction against selling from here to London is to be maintained. One would think that by now all German goods which could possibly endanger the welfare of the market must have been liquidated long ago. It seems more than likely that some time before the outbreak of war precautions must have been taken by the wily and well-informed Tenton, whereby he converted parcels of scrip bearing names of ill savour into more palatable and negotiable nomenclature. Anyway, it appears manifestly unfair that the local Stock Exchange should continue indefinitely being the dumping ground of the world without ever having the chance of taking advantage of any possibly favourable turn on the other side of the water. On Thursday afternoon City Deeps rose to 87s. 6d.; but in the dull opening on Friday they receded to 86s., 87s. The only stock that showed improvement on the Call was Consolidated Investments, which came 19s. buyers without the sellers. The following are the last quotations of the leading stocks. Bantjes, 15s. 6d., 16s.; Consolidated Langlaagte, 27s. 6d., 28s.; Government Areas, 48s. 3d., 48s. 6d.; Knight Centrals, 10s. 9d.; Modder Deep, £7 2s.; New Modders, £18 15s., £19; Modder B, £6 19s., sellers; Kleinfontein, 28s. 3d.; Pretoria Cements, 82s. 6d., 84s.; Rand Selection, 74s. 6d., 75s. 6d.; Sub-Nigel, 26s. 9d., 27s.; Springs, 63s., 63s. 3d.; Van Ryn Deep, 68s. 3d. In the unlisted stocks, the Daggafontein lot have been neglected; approximate middle prices being for the new shares, 24s.; old shares, 14s. 3d.; options, 12s.; Hendersons have fared no better, the fully-paid being 4s. 6d. buyers. For the remainder, the last figures give Antimony at 3s. 6d. sales; Lorenzo Diamonds, 40s. 6d., 44s.; Sletta Diamonds, 6s. 6d., buyers; and Verdites, 2s., sellers.

	Fri., 8th.	Sat., 9th.	Mon., 11th.	Tues., 12th.	Wed., 13th.	Thurs., 14th.
African Farms	8 6*	8 6*	8 9	8 6*	8 3*	8 6*
Apex Mines	5 9*	5 9*	5 9*	5 6*	6 0	5 9*
Aurora Wests	14 6†	14 6†	14 6†	14 6†	—	—
Bantjes Cons.	16 6*	16 4*	16 5	16 3*	16 6*	16 1

Blaauwbosch Diamonds	—	67 6*	—	—	67 6*	—
Brakpan Mines	92 6*	93 0*	93 0	92 0*	92 6*	92 0
Breyten Collieries	18 6*	18 0*	18 6*	18 6*	18 6*	18 6*
Brick and Poteries	5 0*	—	5 0*	5 0*	—	—
Cassell Coals	23 6*	24 6*	24 0*	24 0*	24 0*	24 0*
Cinderella Cons.	7 0†	—	—	—	—	7 0†
	Fri., 8th.	Sat., 9th.	Mon., 11th.	Tues., 12th.	Wed., 13th.	Thurs., 14th.
City and Suburbans	37 6†	37 0†	37 3†	36 9†	37 0*	36 6†
City Deeps	86 0	84 9*	85 0	84 6	84 0*	85 6
Cloverfield Mines	8 7*	8 9	8 8*	8 9	8 6*	8 9*
Clydesdale Collieries	—	10 0*	10 0*	10 6*	10 9	11 0†
Concrete Construction	—	4 0†	4 0†	4 0†	3 9†	—
Cons. Investments	—	—	—	—	—	17 6*
Cons. Langlaagtes	—	—	—	27 6	27 0	27 0*
Cons. Main Reefs	17 9*	17 9*	17 9*	17 9*	17 9*	17 9*
Cons. Mines Selection	20 6*	21 9	22 6*	23 3	22 6*	22 6*
Crown Diamonds	—	—	3 3*	—	3 6*	3 6*
Crown Mines	—	—	52 6*	52 6*	52 6*	52 6*
Crown Mines Debentures	—	£100†	£100†	—	£100†	£100†
East Rand Centrals	8 9*	—	9 0*	—	—	—
East Rand Coals	3 2*	3 2*	3 2*	3 1*	3 1*	3 1*
East Rand Deeps	1 4	1 4	1 3*	1 3*	1 3*	1 3*
East Rand Mining Estates	15 9*	17 0†	15 9*	17 0†	17 0†	15 9
East Rand Props.	16 0	15 9	16 3	16 6	16 0	16 0*
East Rand Debentures	£72½*	£72½*	£72½*	£72½*	£72½*	£72½*
Eastern Gold Mines	1 7*	1 6*	1 6*	1 6*	1 6*	1 6*
Frank Smith Diamonds	3 4	—	3 6	3 4*	3 4*	3 5*
Geduld Props.	44 3	43 3	43 6	42 9	42 6*	43 0
Glencairns	1 3*	—	1 0*	—	1 0*	1 3*
Glencoe Collieries	7 0*	7 6*	7 6*	7 0*	7 6*	7 6*
Glynn's Lydenburgs	16 0*	—	15 6*	—	15 3*	16 6†
Government Areas	48 9	49 9	49 6	49 3	48 6	48 9
Jupiters	8 5	8 3*	8 4	8 6	8 4*	8 4*
Klerksdorp Props.	2 6*	2 6*	2 6*	2 6*	2 6*	2 6*
Knight Centrals	12 1*	12 0	11 10	11 6	11 0*	11 3
Lace Props.	6 1*	6 1*	6 1	6 0	6 1	6 0*
Luipaardsvlei Estates	7 6*	7 6*	7 6*	7 9*	7 9*	7 9*
Lydenburg Farms	8 3*	8 3*	8 3	8 1*	8 1*	8 0
Main Reef Wests	6 3*	6 3*	6 5	6 0*	6 3*	6 0*
Main Reef West Debs.	—	£54†	£54*	£54*	—	£54*
Middelvlei Estates	1 6	—	—	1 4*	1 4*	—
Modderfontein B.	141 6*	—	137 0*	138 6*	139 6	139 0
Modder Deep Levels	143 0*	143 0*	143 6*	143 0*	143 0	142 6*
Leeuwpoot Tins	13 9*	14 3	14 0*	14 0*	13 9*	13 9*
Natal Navigation Colls.	17 3*	—	—	17 0*	17 0*	16 9*
National Banks	—	£11½*	—	£11½	—	£11½*
New Boksburgs	1 10*	—	—	1 8*	1 10	1 10*
New Eland Diamonds	22 0	22 6	23 6*	22 0*	—	21 6*
New Era Cons.	10 1½	10 2	10 5	10 4*	10 6	10 7
New Geduld Deeps	5 7*	5 7*	—	5 6*	5 5*	5 6*
New Heriots	—	49 0*	50 0*	49 0*	50 0*	50 0*
New Kleinfonteins	28 3*	28 0	28 3	28 6	28 3*	28 3
New Modderfonteins	395 0*	380 0*	375 0*	377 6	376 3*	375 0*
New Rietfonteins	0 6*	—	0 6*	0 6*	1 0†	0 9
New Unifeds	—	10 6*	10 6*	11 0†	10 6*	—
Nourse Mines	20 0†	18 0*	18 3*	20 0†	17 0*	18 6*
Premier Deferreds	—	100 0*	100 0*	—	—	—
Premier Preferreds	140 0*	142 6*	140 0*	140 0*	140 0*	145 0*
Pretoria Cements	84 0	82 6*	82 6*	84 0	83 0*	—
Princess Estates	2 0	2 0	—	2 0†	2 0†	2 0*
Rand Collieries	—	—	—	—	3 0*	3 0*
Rand Klips	8 10*	8 9*	8 8*	8 8	8 6*	8 9
Rand Nucleus	2 0*	2 0*	2 0*	2 0	1 10	—
Randfontein Deeps	3 9*	4 0*	4 0	3 11*	3 10*	4 0*
Randfontein Estates	13 0*	13 6*	13 9	13 9	13 0*	13 6*
Roberts Victor's	10 0*	11 0*	—	10 6*	10 6*	9 0*
Rooiberg Minerals	10 3*	10 3	10 6	10 3*	10 3*	10 3*
Roodoport Uniteds	10 0*	11 3†	10 0*	10 6*	10 6*	10 3*
Ryan Nigels	2 6*	2 6*	—	2 6*	2 6*	—
Shebas	2 0*	—	2 0*	2 0*	2 0*	2 0*
Simmer Deeps	3 0	3 6	3 3*	3 0*	3 0*	3 5
S.A. Breweries	31 0*	31 6*	32 0*	32 3*	—	—
S.A. Lands	5 3*	5 3*	5 4*	5 3*	5 0*	5 1*
Springs Mines	62 6	62 6	63 0	62 0	61 9	63 3
Sub Nigels	26 3	27 3	26 6*	27 3	26 6	27 3*
Rand Selections	73 9	75 6	75 9	74 9	73 6*	75 3*
Transvaal Lands	18 6†	16 0*	18 6†	18 6†	18 6†	16 0*
Transvaal G.M. Estates	25 6	25 0	24 9*	24 9	23 9	24 6†
Van Ryn Deeps	68 9	68 6	68 6	68 0*	69 0*	68 6*
Village Deeps	31 6†	31 6†	—	—	—	—
Vogel Cons. Deeps	1 9*	1 9*	2 0†	1 6*	1 6*	1 0†
Welgeaachts	27 0*	27 0	28 0*	32 0†	—	30 0†
Western Rand Estates	1 0*	1 3*	1 3*	1 3*	1 3*	1 3*
Witwatersands	—	54 6*	55 0*	54 6*	55 0*	—
Witwatersrand Deeps	23 3*	23 3*	23 0*	23 0	23 0*	23 0*
Wolhuters	11 0*	11 0*	11 0*	11 0*	11 6†	11 0*
Zaaiplaats Tins	6 6	6 3	6 0*	6 3	6 3*	6 3*
Oceana Development	—	—	—	3 0*	—	3 0*



## THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

### A Few Notes on the Commercial Congress at Capetown—Warning to the Commercial Community—Mine Purchases and Overstocking.

THE feature of the week has been the meeting of the annual congress of the South African Associated Chambers of Commerce at Capetown. The President's address at any gathering of this sort is always of interest, since, obviously, such statements are carefully prepared and revised before coming before that section of the public immediately interested. The address stated that there had naturally been a rise in the price of all imported goods in South Africa, owing to the increased cost overseas, but as far as could be ascertained there had been no excessive raising of prices in South Africa over and above the actual increase in the cost and importing charges. Possibly in some instances, increase in freights has caused as great an advance in the price of the necessities of life as the increase in the cost of production. Freights had risen enormously since the outbreak of the war; partly owing to the increased risks and an increase in the cost of running, but chiefly owing to the withdrawal of a large portion of the mercantile fleet for war purposes and the sinking of so many vessels by enemy submarines. In August, 1914, a war surcharge of 33½ per cent. was imposed, which was reduced in January, 1915, to 15 per cent. However, in February, 1915, an increase was made in the freight of 5s. per ton. In January, 1916, another increase came of 10s. per ton, and from August 1st, 1916, the surcharge was abolished and an all-round rate of freight of 80s. per ton was adopted, with exemptions for certain classes of goods which were formerly charged at the lower rate of freight. It is very doubtful, according to the President's address, if these enormous increases can be justified even under war conditions, for it is evident from shipping companies' returns that their profits have greatly increased during the last two years, and it is one of those matters which will require the attention of the Government at an early date.

#### WARNING TO THE COMMERCIAL COMMUNITY.

The President concluded by stating: "With regard to the commercial outlook it is impossible to say what will take place, but we may learn something from the experience of the past, and we must not be surprised if there is a set-back in trade for a time after hostilities cease, and in view of the great increase in the imports during the first half of this year I would warn importers against over-stocking. Possibly the increase in imports to a certain extent was necessary, owing to stocks having been depleted when it was difficult to obtain goods, but we must remember that very many millions of borrowed money have been put into circulation by the Union Government, and this will cease when the war terminates. On the other hand, important mining development, public works, and buildings are being held over owing to the high price of machinery and materials, and provided capital is forthcoming these will be put in hand and to a certain extent make up for the stoppage of war expenditure. I have every confidence in the future

of this country provided the two white races work harmoniously together for its advancement, and act wisely in devoting part of the revenue derived from our great mineral resources, in developing agriculture, opening up our base metals, and improving our railway communications in order that as our output of gold decreases, we shall have other products to export, and in that way establish permanent prosperity for all sections of the people of South Africa."

#### OVER-STOCKS AND AN IMPROMPTU MEETING.

An expert who often gives valuable information for these notes, said that the question of over-stocks had been referred to several times, but it could not be too often repeated. During the conversation a buyer appeared on the scene, and in a few volunteered remarks stated that he understood that mining material was likely to recede in price in Johannesburg, more as a local condition than because of any reduction at the overseas factories or in freights, as it was stated that not only were stocks heavy in Johannesburg but so much more was on the way here, and undoubtedly some holders would have to sell through various reasons, perhaps more easily understood than explained. In this interview it was gathered that when the present over-stocks were absorbed, values may quickly recover, if perchance a temporary set-back does occur in some lines. It is not an easy problem to solve, but it is a problem that cannot be overlooked, as undoubtedly it is one of the foremost in the minds of our importers. This is emphasised by the address of the President of the Chamber of Commerce meeting, as referred to in a previous paragraph. If we had only the British side of the question to consider, it would not be so difficult, but what about the other countries making such a dead set on this great centre for ready-money mining supplies. America in this respect is well to the front, and Japan is coming on as no mean second now their ships come via the Cape instead of the Suez Canal. The freight can no doubt be well held up by the shipping companies now running between Britain and South Africa against all eventualities, but that may not altogether apply to the American trade; or put in another way, it is in the direction of America we can look for surprises, for immediately the war pressure is in the slightest degree released, the freight question will be quickly discounted. In all fairness, however, an expert states that the present recognised South African shipping companies give cheaper transport than in any other part of the world. There are always a few exceptions, and as regards the over-stock question it appears that the highest class of instruments, special and intricate machines, gauges are scarce and almost impossible to obtain from overseas. At another merchant's establishment the information was vouchsafed in rather a doleful strain, as it was stated that notwithstanding the increase in freight and cost of actual landing goods in Johannesburg, the mines were not paying more, through such keen competition and plentiful supply of stocks, as a rule, being available.

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## IRON, STEEL, HAMMERS, GALVANISED WARE.

The minimum price for drill hammers has fallen a penny per lb., owing to heavy stocks. Iron generally is on the upward trend without at present a revision of the price list. Angle iron has advanced on an average of 7s. 6d. per 100 lbs., and difficult to obtain at that. Stock sizes of spring steel are almost unobtainable, and practically any price is paid to obtain just the right article. Wire netting has also advanced very considerably, as well as horse-shoe nails and some kinds of the wire variety. There is an increased demand for barbed wire, as it is cheaper than the plain description for fencing purposes over a long length, and easier to obtain and work. All kinds of galvanised spars are a little dearer, but stocks of roofing iron are quite good and remain much the same in price.

## TIMBER AND BUILDING MATERIALS.

All ordinary timber is fairly plentiful and values remain the same. It is said that some new stocks are expected to arrive at the coast shortly. Doors and windows have recently advanced in price, therefore the following latest prices should be of interest. Four-panel doors, 6 ft. 6 in. x 2 ft. 6 in. x 1½ in., 17s.; do., 1½ in., 18s.; and 1¾ in., 21s.; 6 ft. 8 in. x 2 ft. 8 in. x 1½ in., 19s.; 6 ft. 10 in. x 2 ft. 10 in. x 1½ in., 21s.; 7 ft. x 3 ft. x 1½ in., 24s. 6d. Windows, 12 lights, 10 ft. x 12 ft. x 1½ in., 33s.; 4 lights, 16 ft. x 32 ft. x 1½ in., 37s. 6d. The second-hand yards are quiet for building material, as they have recently been exploited and well sorted over and the best things purchased. And although they are somewhat low in the best stocks, yet competition is so keen that somehow or another, fresh lines seem to have trickled into the various yards, almost every time one visits them. To illustrate how important this trade is, one dealer has recently bought an adjoining stand and so extended his premises to half a block in the south-west corner of Marshall Square.

## VARIOUS TRADE ITEMS.

The demand for ready mixed paints, both in small and large lots, has been extra good during the present month. Borax has advanced 7s. 6d. per 100 lbs. in Johannesburg on account of the increase in oversea values. A small diamond mine in the Pretoria district is being equipped with machinery and other mining requisites. Rhodesia is in the Johannesburg market for shaftings, rails and general stocks of assorted mining materials. The latest information from a broker is that business is quieter to-day than yesterday, or this month than last, simply because the mine orders are so meagre.

## REVISED PRICE LIST.

Approximate war prices, subject to quick change.—Mining and building hardware: Iron, imported, round up to 1 in., 30s.; 2 in. to 6 in., 25s. per 100 lbs. Ditto, square, up to 1 in., 27s. 6d.; 1½ in. to 2½ in., 23s. 6d.; 2½ in. to 5 in., 25s. Flats, 3-16 in., 37s. 6d.; all from ¼ in. up, 30s. Angles, ½ in. to 3-16 in., 40s.; ¼ in., 35s.; 5-16 in. to ¾ in., 30s., excepting 5 x 4 x ¾ in.: mild steel bar, 4½ d. lb.; drill, 7 lb.; steel plates, 10 ft. by 4 ft. by 1-16th in., 35s.; ½ in., by 3-16 in., 32s. 6d.; ¾ in. to 5-16th in., 31s.; ¾ in., up to 30s.; 10 ft. by 5 ft. by 1-16 in., 36s. 6d.; ¾ in. and 3-16 in., 34s.; ¾ in. to 5-16 in., 32s. 6d.; ¾ in., up to 31s. 6d.; intermediate sizes up to 12 ft. by 6 ft. by 1-16 in., 37s.; ¾ in. and 3-16 in., 34s. 6d.; ¾ in. and 5-16 in., 33s.; ¾ in. and up 32s., all at per 100 lb.; hexagon and cuphead bolts, ½ in. diameter to 2½ in., 55s., over 2½ in., 52s. 6d.; ¾ in. to 2½ in., 50s., over 47s. 6d., ¾ in., ¾ in., 1 in., up to 2½ in., 45s., over, 42s. 6d.; nuts, ¾ in., 10d. lb., ¾ in., 60s., ¾ in., 57s. 6d., 1½ in., 1¾ in., 62s. 6d., 2 in., up, 67s. 6d.; washers, all sizes, 45s.; rivets, 3-16 in., 1s. 1d. lb., ¾ in., 5-16 in., 10½ d., 7-16 in., ¾ in., 7½ d., ¾ in., 45s., ¾ in., 42s. 6d., ¾ in. up, 40s. lb.; shoes and dies, 32s. 6d. to 35s. per 100 lb.; rails, £23 per ton; picks, 4 lbs., 27s. per doz.; shovels, 32s. 6d. to 50s. per dozen; drill hammers, 5½ d. lb. to 9d. lb.; hammer handles (best American), 14 in., 3s. 6d., 24 in., 8s., 30 in., 11s., 36 in., 13s., per dozen; metal, anti-

friction, 1s. per lb.; galvanised iron, 24 gauge, 6 ft. to 10 ft., 10½ d., 11 ft. 10½ d., 12 ft. 11½ d.; 26 gauge, 6 ft. to 10 ft., all lengths, 9½ d. to 9¾ d. per ft. all-round; flat galv., 18 to 24 gauge, 35s. 6d.; 26 gauge, 36s. 6d. 100 lbs.; floor brads, 32s. 6d.; ceiling, 33s.; wire nails, 35s. to 55s. per 100 lbs.; solder, 50 per cent., 1s. 2d. per lb.; locks, rim, 48s.; mortice, 60s. dozen; barbed wire, 23s. 6d. to 25s. 100 lb. coil.

Timber: Deals, Baltic, 9 x 3, short and medium 1s. 1d.; longer lengths, 1s. 2d. to 1s. 3d. (Oregon, 1s. 1½ d.); flooring, 4½ x ¾ and 6 x ¾, 6½ d. to 6¾ d. per sq. ft.; do., 4½ x 1½, 7d.; and 6 x 1½, 7d.; Oregon edge grain, 4 x 1½, 7d.; ceilings, 6 x ½, 3¾ d. to 3¾ d. per sq. ft.; Oregon, 4 x ½, 4½ d.; pitch pine, 8s. per cub. ft.; Oregon, 6s. per cub. ft.; clear pine, ½ in. x 12 in., 7½ d. per ft.; 1 in. x 12 in., 8½ d.; teak, small planks, 14s. 9d. per cub. ft.; do., large, 15s. 6d.; jarrah, 8s. 6d. per cub. ft.; poplar, 1 in. x 12 in., 9½ d.; scantling, 1s. 1d. to 1s. 3d. per ft., 3 x 9.

Bricks, cement, lime, etc.: Cement, nominal, 34s. 6d. per cask; Pretoria Portland, 9s. 3d. per bag; 8s. 3d., truck loads; lime, white, 7s. 9d.; truck loads, 6s. 9d., slaked; do., 5s.; blue, 3s. 6d.; plaster lime, 4s.; bricks at kiln, stock, 36s. to 42s.; wire cuts, 40s. to 50s. pressed, 65s. per 1,000, road transport getting scarce; salt and white glazed bricks, £27 10s per 1,000; tiles, roofing, £17½ square; glazed tiles, 10s. 6d. to 17s. 6d. yard; paving cement tiles, 8s. 6d. yard laid; terra cotta tiles, £15 per 1,000; reinforced concrete columns, 6 ft. plain, 22s. 6d., duted, 24s.; fireclay bricks, £9½, good average, per 1,000; clay chimney pots, 80s. per doz.; fireclay, 37s. 6d. ton on rail.

Oils, paints, lead, oxides, glass: Linseed, raw, 26s. 6d.; boiled, 26s. 6d. per 5-gall.; white lead, 70s. to 72s. 6d. 100 lbs.; turpentine, 49s. 2¼ galls.; 10/1, 54s.; coal tar, imported, 10s. to 12s. 6d. per 5 galls.; oxide in oil, 35s. to 36s. per 100 lbs.; dry oxide, 21s. to 22s. 6d.; S.A. crude oxide, 12s. 6d.; linseed oil putty, 4s. 6d. per 12½ lbs.; bladders, 36s. casks of 100 lbs.; grease A.F. axle, 23s. 6d. to 25s. per 100 lbs.; tallow, 1s. per lb.; White Rose paraffin, 17s. 3d. 2/5; Laurel do., 17s.; petrol, 27s. 6d. 2/4; motor oil, 6s. to 7s. 9d. per gallon; engine lubricating oils, 22s. to 35s. per case; cylinder, 25s. to 40s.; paints in tins, 10d. to 1s. per lb., according to quantity, and if ordered to be mixed, 20 per cent. on pre-war rates. British plate-glass, ¼ in., 3s. 6d.; do., mirror, 4s. 6d.; window, 16oz., 1s. to 1s. 3d. foot.

Chemicals: Mercury, £21 per 75 lb. bottle; bichromate potash, 2s. 6d. lb.; chlorate, 2s. 6d. lb.; permanganate, 9s. lb.; alum, 5d. lb.; carbolic acid, 7s. 9d. lb.; borax, 90s. 100 lbs.; cyanide soda, 1s. 5d. lb.; hypo, 9d. lb.; acetate lead, 70s. 100 lbs.; litharge (assay), 70s. (commercial), 55s. 100 lbs.; zinc sheets and blocks, 1s. 6d. lb.; plumbago crucibles, 5d. per number.

Electrical Goods: Lamps, high volts., British, Holland & American, 16s. to 21s. wholesale, and 21s. to 27s. dozen, retail; carbon lamps, 7s. 6d. per dozen; pure rubber flex, 5d. to 6d. per yard; 3/20 coils of wire, 26s.; do., 3/22, 22s. 6d.; tubing, 12s. to 13s. 100 ft.; keyholders, 3s. each; round blocks, 3½ in., 3s. 6d. doz.; lamp holder cord grips, 13s. 6d. doz.; switches, 5 amp., 13s. to 14s. doz.; British glass shades, 24s. to 36s. doz.; Bohemian shades finished; porcelain shackles, 14s. 6d. doz.; do., bobbins 9s. to 9s. 6d. per 100; cleats, 18s. per 100; P.O. insulators, 18s.; motors, 3 h.p., about £28 to £35, new.

## Jagersfontein Mines.

The New Jagersfontein diamond mining company has resumed night work on a small scale, which is the first time since the outbreak of the present war.

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## Engineering Notes and News.

### S.A. INSTITUTION OF ENGINEERS: NEW PRESIDENT'S INAUGURAL ADDRESS.—IV.

#### The Power Supply of the Rand.

A LOOSE flange surrounds the inner pipe and is provided with a toe, shaped to fit into the annular space between the two pipes. This flange is used for compressing the packing inserted between the pipes, tightening bolts being provided between the flange and a ring surrounding the expanded pipe. The joint is therefore nothing more than a stuffing box, and the packing adopted was a moulded rubber ring. This rubber has proved entirely satisfactory on all cool sections of the system, but as the air leaving the compressors often reaches a temperature of 100 deg. C. or more, the rubber in the joints of pipes radiating from the compressor stations and for a distance of about a mile therefrom soon perished. To overcome this difficulty, various types of packing were tried, and the trouble has been surmounted by the use of asbestos rope lubricated with graphite. This latter packing, being relatively non-elastic, requires to be tightened periodically, and to enable this to be done these particular joints, which are relatively few in number, have been left exposed in open fenced pits. The packing soon settles down, and the cost of re-tightening is a negligible item. A complete solution of the difficulty would be to instal after-coolers at the compressing stations, to use rubber packing throughout the pipe system, and to bury all joints in the ground, but it has not yet been found convenient to meet the expenditure which would be entailed. It will be observed that the total loss from compressing stations to the consumers' valves is now only about 1 per cent. The corresponding efficiency of 96 per cent. represents the ratio which the number of air units delivered to consumers bears to the number sent out from compressing stations, and as the definition of the air unit is based upon the isothermal work of compression, the loss includes all leakage and frictional losses, but excludes the previously-mentioned 3 per cent. loss of energy due to cooling. Four per cent. is very little in excess of the theoretical loss by friction, and it follows, therefore, that the leakage is now a negligible quantity. The electric load factor, excluding supply to compressors at Robinson, is just over 70 per cent. and has now assumed a relatively steady value. It is unlikely that this factor will fall, because the price per unit charged to the mining groups increases if the load factor of the group falls below 70 per cent. The diversity between the maximum demands of the several groups is virtually nil, because each group comprises many mines, and, as already mentioned, even between the mines themselves the diversity is relatively small. In other words, the load factor of the company's output is virtually the same as the load factor of the individual groups of mines which it supplies. It may be of interest to mention here that the measurement of the load factor of a group of widely separated consumers has been satisfactorily achieved by installing instruments termed "printometers" to work in conjunction with the watt-hour meters at points of supply. This instrument records the total number of units consumed up to the end of successive half-hours. It consists of a separate mechanism having three dials driven by the watt-hour meter and designed to stamp their readings at the end of each half-hour on a paper tape. The several stamping

mechanisms are simultaneously actuated by electricity sent through pilot wires from batteries controlled by clocks installed at central points such as the Brakpan and Simmerpan generating stations. By extracting from these printed tapes the increment of consumption for each point of supply during the same hour, and by adding these increments together, the total consumption for the group for any given hour is obtained and the ratio which the group's average consumption per hour during the month bears to the maximum of such hourly total consumptions is the monthly load factor for the group. The load factor of the air system will be seen to average from 40 per cent. to 45 per cent. This factor has recently shown a welcome tendency to rise, but it is still considerably below the figures ruling in 1912. The reduction is mainly due to the general adoption of single shift working by the mines, as will become evident by reference to the daily load curves shown in Figure 5. Typical week-day and Sunday load curves are given for the electric and air supplies as obtaining in 1912 and at present date. They represent the numbers of electric units and air units sent out per hour, and in the former case the supply to the compressors at Robinson has been excluded, in order that the curve may represent supply to electric consumers only. The week-day load factors, calculated from these load curves, are shown in the figure, and it will be noted that for the electric supply the factor has fallen during the four years from about 84 per cent. to 80 per cent., and for the air supply from about 64 per cent. to 52 per cent. These daily factors must not be confused with the monthly factors previously considered, which latter include Sundays and holidays, and are, therefore, considerably below the typical week-day figures. It is interesting also to note the similarity in the general shape of the curves for the two classes of supply and the fact that the peaks overlap. If the air peak had happened to occur at midnight instead of at midday, the combined week-day load factor for the two classes of

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supply would to-day be about 88½ per cent., and the 13,000 to 14,000 K.W. of load, which is normally supplied to Robinson compressors, would be removed from the electric peak, thereby enabling that amount of additional electric business to be undertaken without any expenditure upon generating stations or main transmission system.

#### OPERATING FEATURES.

The operation of a system of this size and complexity, in such a manner as to obtain maximum economy and reliability of supply, is one of the most interesting aspects of the business. I will touch upon only a few features which concern the system as a whole. The entire system, though operated as one, is divided into two portions as regards ownership. The Rosherville, Vereeniging and Robinson stations, with certain portions of the transmission system and the whole of the underground cable networks, belong to the Rand Mines Power Supply Company, whilst the Simmerpan and Brakpan stations, with the remainder of the transmission and distribution systems, belong to the Victoria Falls and Transvaal Power Company. Under present conditions, economy dictates that the maximum possible number of electric units shall be generated at the Brakpan station, and the minimum possible number at the Rosherville station. That being so, the Simmerpan station is left to generate the balance required to meet the consumption of consumers on the Victoria Falls and Transvaal Power Company's system, and the Vereeniging station the balance required by consumers on the Rand Mines Power Supply Company's system. The Rosherville station is therefore run as a peak electric station; that is to say, it supplies the minimum possible quota of the total requirements of the combined electric system during the morning and afternoon, and its electric sets are entirely shut down at night, but it supplies the major portion of the compressed air by day and by night. The power factor of the total load on the system varies during the 24 hours, but averages about 80 per cent. during the period of heaviest loading. This means that the quantity of current sent out and transmitted is about 25 per cent. greater than that represented by the units sent out, and this additional current can be generated independently of the power itself and may be distributed between the various generating stations as deemed most economical. Loss in transmission depends solely upon the quantity of current transmitted, and it therefore pays to transmit minimum current over maximum distance. Consequently the Vereeniging station is operated at the highest permissible power factor, and during the day time a figure of over 90 per cent. is attained, the other stations (which are nearer to consumers) being left to generate the balance of current in such proportions as will involve a minimum flow through the 10,000 volt inter-connectors. The air compressors at the Robinson station are driven by synchronous motors, these latter being designed to take a leading current with the object of raising the power factor of the system. Careful tests have been made to ascertain whether it pays to further improve the system power factor by operating idle generators as synchronous condensers, but, excepting under special circumstances, this does not pay. Arrangements are made, however, so that when a set is out for overhaul the generator can be run uncoupled as a synchronous condenser in the event of unforeseen breakdowns causing a shortage of K.V.A. capacity on the system. As most of you will remember, the supply in the early days was very far from reliable, and I shall not forget the thankless task of endeavouring, without adequate capacity in reserve, to cope with the initial defects which are inseparable from new plant. Those days are far behind us, and I think it may be said that the supply is now accorded a good reputation. I will briefly refer to

some of the expedients which have contributed towards this desirable result. Essential conditions for reliability of supply are: (1) The duplication of essential items of equipment (such as sub-station feeders) and the provision of an adequate capacity of spare plant at generating stations and sub-stations. (2) The maintenance of all plant and apparatus in first-class working condition. (3) The efficient control of all switching operations and of all work in proximity to live conductors. (4) The provision of efficient automatic means for isolating faulty plant and apparatus. The supply to all important sub-stations is in duplicate over separate divergent routes. Experience under lightning conditions has brought out very clearly the advantage to be gained by adopting what I may term the chessboard type of distribution network—i.e., one comprising single circuits spaced as far apart as conveniently possible. A network of this type brings prospective consumers within minimum distance of a source of supply, and when a lightning storm passes across it there is minimum risk of faults occurring simultaneously on the two or more routes feeding a given consumer. At the present time the capacity of generating plant in reserve is represented by something more than the three largest generating units, and a spare transformer is provided in all important sub-stations. Steps are being taken to materially increase the capacity of existing generating plant by cooling the air which ventilates the alternators. The maintenance of plant and apparatus is carried out under a definite programme of inspections and overhauls, thus ensuring the early knowledge of any deterioration that may be taking place. In this way the risk of breakdown is restricted to faults which may result from hidden causes. All switching operations are controlled by one responsible person during each shift, who is in telephonic communication with every point on the system. All such operations and the organisation and control of all work in live chambers is made subject to very complete and rigid regulations, these regulations being more stringent than those of any other power company with which I am acquainted. These regulations have undoubtedly been the means of averting many accidents and loss of life. Certainty of automatic isolation of faulty plant and apparatus has been achieved by adopting the differential system of protection. Prior to the invention of this system the method in use was one which depended for its action upon the simultaneous occurrence of an overload and a reversal of the direction of flow of power. In the simple case of a pair of feeders connecting a generating station with one sub-station it is clearly possible to automatically isolate either feeder when it breaks down by inserting at the supply end of each feeder a relay designed to operate, with a time lag, when an overload takes place, and by inserting at the delivery end of each feeder a relay designed to operate simultaneously in the event of a reversal in the direction of the flow of power. It is easy to see, however, that such a system is quite unsuitable for application to a large or complicated network of feeders, and especially to one of the chessboard type. Theoretically, discrimination can be obtained between the operation of a number of overload relays installed on a series of feeders by giving each relay a somewhat longer time lag than those which are situated further from the source of supply, but if this is done the time lag of those relays which are nearest to the source of supply becomes excessive. Moreover, such grading of the

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time lags of overload relays and the use of reverse power relays become quite impossible on an interconnected ring-main network, in which power may flow through an individual circuit in either of the two directions. Dire experience has proved the very limited scope of this early system and its inability to discriminate satisfactorily on any but the smallest and simplest networks. The action of the differential system depends upon an entirely different principle. Inasmuch as every fault must involve a leakage at some point on some conductor, a universal criterion for discrimination as between healthy and faulty circuits is the existence or non-existence of an exact balance between the quantity of current entering and leaving the extremities of such circuits. It is a fundamental law that at every instant of time the total quantity of current entering any given circuit, however complex it may be, is exactly equal to the quantity leaving that circuit. In practice the currents passing the two ends of a feeder or entering and leaving the windings of a generator, transformer or other item of equipment are arranged to produce inductive effects in a common secondary circuit containing the relays. Under normal conditions the vectorial sum of these inductive effects is zero, but immediately upon the occurrence of a leakage from any portion of the main circuit the balance in the secondary circuit is upset; current is therefore caused to flow in the secondary circuit, and this instantaneously operates the relays and trips the main switches. It will be clear that this system possesses perfect discriminating properties, and, in addition, it eliminates any necessity for a time lag in the operation of the cutouts. Experience under the severe conditions obtaining in this district has conclusively proved that by its adoption all faults are instantaneously isolated without the isolation of any item of equipment other than that which has failed. Moreover, in instances where lightning causes a line insulator to flash over, the rapidity with which the isolation is effected prevents permanent damage to the insulator in about four cases out of every five. When interruptions do occur they are almost always due either to the failure of the switch itself, when called upon by the differential relay to perform the isolation, or to a mistake on the part of a switchboard attendant when performing switching operations, and in neither case can the system of protection be blamed. As an instance of the reliance which may be placed upon the discriminating properties of the differential system, I may mention that during last month (June) the total number of faults occurring on lines controlled by differential relays was nine; all of these were automatically isolated without any interruption to supply, and in only two of these cases did any permanent damage to the insulators result. This number is high for the time of year, and is mainly attributable to the fact that certain birds which are now present in large numbers have a decided partiality for alighting on the conductors and nesting in the masts and poles.

#### EXPERIENCE WITH GERMAN FIRMS AND PLANTS.

It may not be out of place if I now refer to the Power Company's experience in dealing with certain German concerns, because I do not think a better example could be cited of the methods which our enemies have diligently pursued in their attempt to attain supremacy in the industrial world. The Victoria Falls and Transvaal Power Company was promoted by British interests, and every effort was made to raise the necessary capital in Britain. Unfortunately, these efforts failed, and in the end certain German industrial banks took up debentures on condition that the main contracts were placed in the hands of German manufacturing concerns with which they were allied. As a result, the A.E.G. obtained important contracts on favourable terms. It is unnecessary for me to enlarge upon the advantageous position in which the A.E.G. were thus placed, but I would emphasise the fact that the whole arrangement was the direct result of the German system of industrial banks, under which financial assistance rendered to an industrial undertaking such as a power company becomes the means of assisting German manufacturing firms. Needless to say, this initial arrangement was not continued, and, as the power scheme grew and proved its worth, capital was raised in London at the rate of no less than £1,000,000 sterling per annum and quite independently of German banks. The A.E.G. then became faced with keen competition, but this did not deter them in their effort to secure contracts for the additional plant required. On the contrary, they at once reverted to the policy of dumping their goods at low prices. When in 1912 certain large and important contracts had to be placed the power companies spared no pains to induce British manufacturers to oust their German competitors, but it became clear that the A.E.G. were prepared to accept the same guarantees as British firms, to undercut their competitors' bed-rock prices and to give better deliveries. It must be remembered that, although feelings of sentiment to-day run high, no purchaser in 1912 would have been prepared to sacrifice large sums of shareholders' money in order to avert the dumping of German goods. In the end the Germans secured most of the contracts at prices largely below those offered by their British competitors.

(To be continued.)

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## Company Meetings.

### FAIRVIEW (T.C.L.) LIMITED.

The annual meeting of shareholders of Fairview (T.C.L.), Ltd., was held at 11.45 a.m., Sep. 8th, in the board-room, Corner House. Mr. H. C. Boyd presided, and there were also present Messrs. C. A. Breyer, J. J. Garrard, J. Jeppe, A. F. Mullins, C. L. Read, H. J. Summerley, and W. E. S. Lewis.

The Chairman said:—The directors' report and the accounts for the 12 months ended 30th June last are submitted for your approval. During the latter half of the period the management had to contend with considerable difficulties. Owing to the changing nature of the ore it was not possible to obtain satisfactory extraction, which only averaged about 75 per cent. for the year, and considerable expense was incurred in the effort to improve matters in this respect. The serious accident to the main engine in April was a further handicap. The increase in the scale of development to a total of over 15,000 feet, a large amount for a small mine such as ours, was an additional item of expense, and the result for the period was a profit of only £3,217. The mine has continued to open up well, and the reserves have been increased to just under 35,000 tons of an average value of 12.5 dwts. over an assumed stopping width of 4 feet. The problem is to obtain economically a reasonable recovery therefrom. As the result of very careful investigation we hope shortly to be in a position to make a practical trial of a process which experimentally has yielded fairly satisfactory results. In the interval we should be able to improve our cash position with a view to meeting the expenditure on plant, which would be necessary if the process proves successful, as development has been virtually stopped, work only continuing in such parts of the mine as contain oxidised ore, which can be treated by the present equipment. Fortunately, there is an appreciable tonnage of this class of ore available for storing, although being scattered throughout the mine it is relatively expensive to work alone. I now beg to move that the directors' report and the balance sheet for the 12 months ended 30th June, 1916, be approved and adopted.

The report and accounts were adopted.

Messrs. H. C. Boyd, E. A. Wallers, C. Distl, J. Jeppe, and J. L. Ramsay were re-elected directors.

The auditors, Messrs. Alex. Aiken and Carter, were reappointed.

### SWAZILAND TIN, LTD.

The annual meeting of shareholders of the Swaziland Tin, Ltd., was held at noon, Sep. 8th, in the board-room, Corner House. Mr. H. C. Boyd presiding. There were also present Messrs. M. Honnet, A. P. Richter, C. McIntjes, S. W. George, W. E. S. Lewis, and F. H. Barry.

The Chairman, in moving the adoption of the directors' report and accounts, said:—In spite of very serious decrease in the water supply—the rainfall being only 47 inches, or nearly 20 inches less than that of the previous year—over 915,000 cubic yards of ground were treated during the 12 months ended 30th June last, with which the report and accounts before

you deal. It appears clear, as the manager points out, that, given anything like normal rainfall, we should in future have no difficulty in treating one million cubic yards annually. The yield per cubic yard was fractionally higher than in the previous year, and this is satisfactory when we consider that 376,000 yards of ground, which had not previously been reckoned on as payable, were profitably handled from the sides of the proved areas, 428 tons of 70.5 per cent. concentrate were produced, as compared with 431 tons in 1914-15. The costs per yard were very slightly higher, but with the better yield, and an improvement in the average price realised for the metal of nearly £8 per ton, the working profit increased by £3,822 to £18,279. Having, as is explained, written off in previous years our share of any expenditure on the Zaaiplaats Lease, we were able to take credit for the whole of the realised proceeds of the sale, which consequently improved the results for the year by £6,537. Altogether, a net profit of £2,470 has been realised from this venture, while in addition some Zaaiplaats Tin Mining Company's shares remain in hand which have been taken into the balance sheet at a purely nominal figure. Allowing for sundry revenue on the one hand and taxes on the other, the net profit for the year was £25,305, out of which dividends totalling 22½ per cent. were paid, and the amount carried forward, represented by cash and cash assets less liabilities, was increased to £19,613. As usual, details are given by the consulting engineer regarding the value of ground in reserve, which has been proved by drilling or otherwise, and a satisfactory position is again disclosed, being very much the same as at the close of the previous year. Most of the drilling last year was for the closer valuing of ground already proved, but we can take credit for two new areas, "Corporation Flats" and "Marzane Creek" where, so far as proved, the values are relatively low, but quite payable at current prices for the metal. Altogether we have reasonably accurate knowledge of not far short of 4,000,000 cubic yards of an average value of 11lb. metallic tin per yard and, apart from other areas yet to be examined, are morally certain of the existence of some further 4,500,000 cubic yards of tin-bearing ground, much of which lies ahead of the proved ground in the various working places.

During the last four months of the past financial year the output averaged just under 40 tons of 70.8 per cent. concentrate, but the shortage of water has made itself seriously felt since then. There have even been interruptions in the running of the electric power station. Consequently, only 30 tons of concentrate were produced during July, and we must expect the results for last month which are not yet available, to be very much the same. I regret to say that the drought still continues, but we can almost certainly count on adequate rainfall on our property during this month, when we should almost immediately revert to the previous scale of output. As you see, the small herd of cattle is not doing well, and we are forced to the conclusion that our veld is not very suitable for carrying stock. The Board wishes to place on record its appreciation of the services ren-

dered during the period under review by Mr. Garrard, our consulting engineer, Mr. Kelly, our manager, and the other employees of the company. I now beg to move that the directors' report and the balance sheet for the 12 months ended 30th June, 1916, be received and adopted.

The report and accounts were adopted.

The meeting confirmed the appointment of Mr. Max. Honnet as a director, and re-elected him and Mr. C. Distl.

Messrs. Alex. Aiken and Carter were reappointed auditors.

### SOUTHERN VAN RYN DEEP.

An extraordinary general meeting of shareholders of the Southern Van Ryn Deep Gold Mining Company, Ltd., was held at noon Sep. 12 in the board-room, Exploration Buildings, for the purpose of ratifying the acceptance, with or without modification, of an offer made by Mr. C. Boad, and which the directors of the company had provisionally accepted, and in the event of the offer being accepted to pass the necessary resolutions empowering the board to give effect thereto.

Mr. W. Kidge. Tucker presided, and in moving the adoption of the offer said:—The business which you have been called to consider is contained in an offer made by Mr. Charles Boad, solicitor, acting on behalf of principals. This offer was considered by the board on August 25, 1916, and it was decided to recommend it to the shareholders for acceptance. A copy of the letter containing the offer referred to has been issued to shareholders, and its terms and conditions will therefore be familiar to you. The present holding of the company is represented by 850 claim licences held on the farm Varkensfontein No. 217, and 290 claim licences held on the farm Marievale No. 295, District Heidelberg. It is possible that when the survey which is now in hand has been worked out an adjustment of the number of claim licences may have to be made, but your directors are satisfied that it will be found that the number of licences is not in excess of the number of claims actually existing in the area which is duly beaconed off, and the beacons of which have been passed by the inspector. The property is well within the East Rand gold-bearing areas, as defined by the Government Mining Engineer in his statement before the Select Committee of the House of Assembly in April last. The claims now offered to the company consist of a block of 150 claims on Marievale adjoining the company's property on the eastern boundary, and a block of 251 claims on Varkensfontein, adjoining the company's property on the southern boundary. All these claims are well within the East Rand gold-bearing area, as defined in the statement I have just referred to. They would form a valuable addition to the company's holding, by securing on the east and south a considerable area where the plane of the reef is much nearer to the surface than it is to the westward, and by increasing the size of the property to conform with an ample margin above the minimum now generally considered necessary, with the area requisite for a mining proposition in the far East Rand. Apart from areas which the Government may from time to time offer under lease, and areas under *mynpacht* brief which owners of farms are entitled to under the Gold Law, the property of this company embraces the only gold-bearing area of suitable extent in the East Rand which was available to the public. The great disadvantage of having to take up so large an area is the great burden of the payment every month of licences which it entails, but it needs no



demonstration to show the folly of undertaking costly prospecting and developing operations on an area which, if it proved satisfactory as regards mineral value, would be useless as a mining proposition because it was too small, and as this company is formed for the purpose of prospecting and developing its property under the firm belief that it offers prospects of success no less promising than those of any other undeveloped property in the far East Rand gold-bearing areas, the acquisition of an adequate area becomes a consideration of primary importance.

### Financial Provision.

The proposals now submitted to you provide the means of obtaining the funds necessary for protecting the company's titles and of carrying out further necessary prospecting and exploitation, and if funds are obtained to the extent anticipated, and if the results of exploitation are as favourable as there is sound reason for believing they will be, a considerable amount of development will be possible also. Many serious efforts have been made to obtain more liberal conditions for prospectors or companies carrying on prospecting operations by the remission of claim licences wholly or in great part during the period before the producing stage is reached. The huge tax on industry represented by claim licences

during the period that capital is being spent on the initial stages of mining operations is wholly indefensible. Nevertheless, no representation that have ever been made to the present or previous Governments have been met with anything more tangible than sincerest commiseration and the promise to give the matter the most careful and sympathetic consideration. The importance to South Africa of the immediate development of the East and gold-bearing areas has been most forcibly pointed out by the Dominions Royal Commission. The Select Committee already referred to, which was presided over by Mr. Malan, Minister of Mines and Industries, regards the question of the provision of better facilities for the development of the Far East Rand gold-bearing areas a matter of urgency, and recommends that inquiry should be undertaken with a view to ascertain what amendments, if any, are necessary in the general provisions of the Gold Law, so as to enable the areas of the East Rand and other similar areas to be most effectively developed. In spite of all this, nothing is done, and efforts such as that of your own company to develop portions of that area by the people of the country and by capital found in the country meet with nothing but discouragement at the hands of the Government. It is hardly to be expected that large financial groups, representing capital controlled by interests outside of

the country should be disposed to participate in any local enterprise of the kind. It remains for the people of South Africa to rely on their own efforts if they would share in the development of the mineral and other resources of their country, as operators and not merely as operatives. The present proposals for financing this company offer an opportunity to the people of South Africa of co-operating in the development of a portion of the far-famed East Rand gold-bearing areas, with very favourable prospects of establishing a successful mining enterprise all their own.

Mr. Tutt seconded the motion. Their setbacks, he said, had not been unusual in the history of the Far East Rand development, and they had as good prospects as other companies which had proved such outstanding successes.

Mr. Bloch described the scheme as democratic finance, and expressed his confidence in the property. He disclosed his interest as one of the principals on whose behalf the offer had come from Mr. Broad. Mr. McKenzie was another principal. He gave details in regard to the financial proposals.

The meeting agreed unanimously to accept the offer, and passed the necessary empowering resolutions to enable the board to act.

### Government Gazette Notices.

The following notices appear in the *Government Gazette* for 1st September:—

An application has been made by Mr. A. J. Marais on behalf of Mr. J. du Plessis to be regarded as a discoverer of diamonds in alluvial on the farm Plessisdam, portion of Kuilfontein No. 121, in the magisterial district of Bloemhof, mining district of Klerksdorp, in the Province of the Transvaal. This application and any objections thereto will be heard at Bloemhof on Thursday, 14th September, at 3 o'clock in the afternoon.

The Hon. the Minister of Mines and Industries has withdrawn from prospecting, as from the 2nd September, the undermentioned unproclaimed Crown lands situated in the mining districts of Ottoshoop and Pietersburg:—Mining District of Ottoshoop—Magisterial District of Rustenburg: Langrand No. 1004; Vogelstruispan No. 765. Mining District of Pietersburg—Magisterial District of Waterberg: Kafferboom No. 560; Leeuwarden No. 1785; Grootlaagte No. 1320; Worcester No. 1723; Nooitverwaacht No. 198; Bedwang No. 1128; Stirum No. 1334; Monte Christo No. 516. Magisterial District of Pietersburg (formerly Zoutpansberg): Uitval No. 1532. Magisterial District of Zoutpansberg: Rooibokbult No. 47 (formerly No. 2006).

### River Bed Rights.

A case has been opened in the Local Division of the Supreme Court at Kimberley, which is of great interest to the alluvial diamond industry. The plaintiff is Mr. J. R. P. Carter and the defendants Mr. Hilgaard van Niekerk and Colonel Mentz, the Minister of Lands, representing the Union Government. The main point involved is the ownership of the Vaal River bed and its mineral deposits. Plaintiff, who is a member of the firm of J. and W. Carter, farmers and stock breeders, said they were the owners of the farm De Bad, adjoining the Vaal River. They claimed that their ownership of the farm extended to the middle line of the stream of the Vaal River, and that all precious stones, gold or silver found on or under the surface of the land of the farm were the property of the owners of the farm. There was no reservation to the Government of precious stones, gold or silver, or of the ownership of the said half of the bed of the stream. Plaintiff said all the owners of land in Griqualand West holding under similar titles to him had always enjoyed such privileges as he claimed, and the Crown had always recognised the enjoyment of such rights by plaintiffs and other owners. The first defendant, Mr. Van Niekerk, who is a licensed alluvial diamond digger, submitted

that plaintiff's farm was bounded by the bank of the river, and that the land between the bank and the middle of the river was the property of the second defendant, and was unalienated. The second defendant urged similar contentions as to the land in question being unalienated Crown land, with the ownership reserved to the Crown.

### New Patents.

212. John Joseph Arthur de Whalley and Hubert Charles Siegfried de Whalley.—Improvements in the treatment of peat and the production of a preparation suitable for use in horticulture and agriculture.
213. Frank Eustace Wilkins Bowen and Frederick William Jenkins.—Improvements in explosives.
214. Thomas Doyle.—Improvements in the treatment of respiratory diseases.
215. Robert Charles Orr and Edward James Tyrer.—A mechanical device called tyron petrol economisers.
216. Oliver Trevellion Jenkins.—Improvements in rock drilling tools.
217. Lancelot Ussher and Armour Hall.—Improvements in or relating to water jets.
218. John Williams Ball.—Improvements in ball-bearings.
219. John Williams Ball.—Improvements in the hoods of rickshas.
220. Charles Edward Meyer.—Improvements in and relating to the treatment of zinc-gold slimes, and in apparatus for use in connection therewith.
221. John Penhale.—Improvements in alcoholic fuels for internal combustion engines.
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